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PIT AND QUARRY

APR 3 1945

MARCH, 1945

TOTAL NET PAID CIRCULATION NOW AT NEW ALL-TIME PEAK — OVER 7,500

FOR 28 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

APR -1 1945

Double-Crimp

Arch-Crimp

Intermediate-Crimp

Flat-Top

"The Perfect" Wire Cloths and Screens

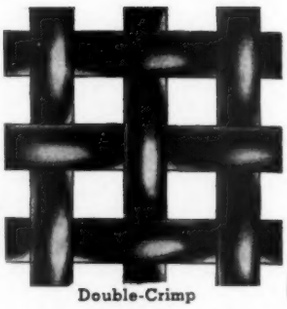
We have been specialists for many years in the making of precision wire cloths, wire screens and woven wire products.

We apply our same precision principles in fabricating wire cloths into finished industrial units, for production or processing equipments or for permanent parts of countless industrial products.

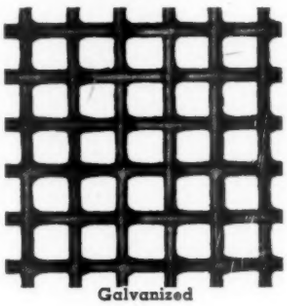
We invite your inquiries for wire cloths of all commercial metals or alloys or weaves, in continuous lengths or cut to size, or processed to meet your individual requirements.

"Perfect" alloys and metals	"Perfect" Wire Cloth weaves	"Perfect" Wire Cloth Processing	"Perfect" Wire Cloth products
Super-Loy	Arch-Crimp	Bending	Baskets
Steel	Coiled	Binding	Circles
Galvanized	Double-Crimp	Brazing	Cones
Tinned	Double-Fill	Calendering	Crates
Stainless Steel	Dutch	Clinching	Cylinders
Nickel-Chromium alloys	Filter	Cutting	Discs
Aluminum	Flat-Top	Dipping	Forms
Brass	Herringbone-Twill	Dishing	Leaves
Bronze	Intermediate-crimp	Flanging	Lengths
Commercial Phosphor	Rek-Tang	Flattening	Panels
Copper	Selvage-Edge	Forming	Pieces
Monel Metal	Straight-Warp	Framing	Racks
Nickel	Stranded	Galvanizing	Ribbons
Any special alloys available in rod or wire form	Sta-Tru	Painting	Rolls
	Triple-Warp	Shearing	Sections
	Twilled	Slitting	Segments
	Twisted-Fill	Trimming	Spaces
	Twisted-Warp	Arc-Welding	Strips
		Gas-Welding	Template shapes
		Spot-Welding	Trays

We will follow your specifications and blue-prints exactly as your production engineers have prepared them—or we will submit suggestions for your approval.

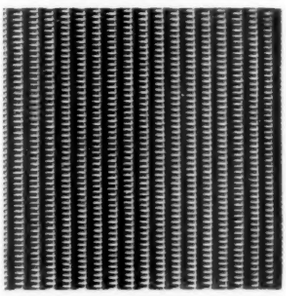


Double-Crimp



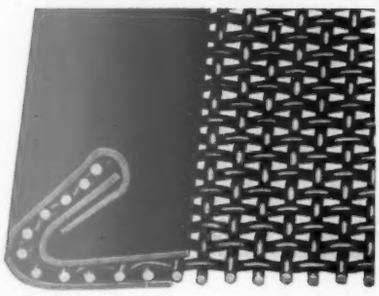
Galvanized

Arch-Crimp Rek-Tang



Dutch Weave

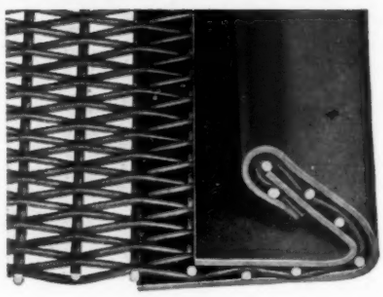
Sta-Tru



LUDLOW-SAYLOR PRECISION FABRICATING

makes vibrating-screen decks and jackets that are easily handled — quickly installed — need fewer adjustments and renewals.

Illustrations suggest only a few of the many available types of wire cloths and woven wire screens, which may be custom-finished with attachments to fit your particular processing installations.



"The Ultimate in a *Mechanized Quarry*"

Loading rock at the quarry face. Payload is 15 tons. Cedar Hollow Plant of Warner Company, Devault, Pa.

EASTON overhead hoist, electrically operated by remote control, tips 15-ton loads quickly or feeds large rocks one at a time as required.

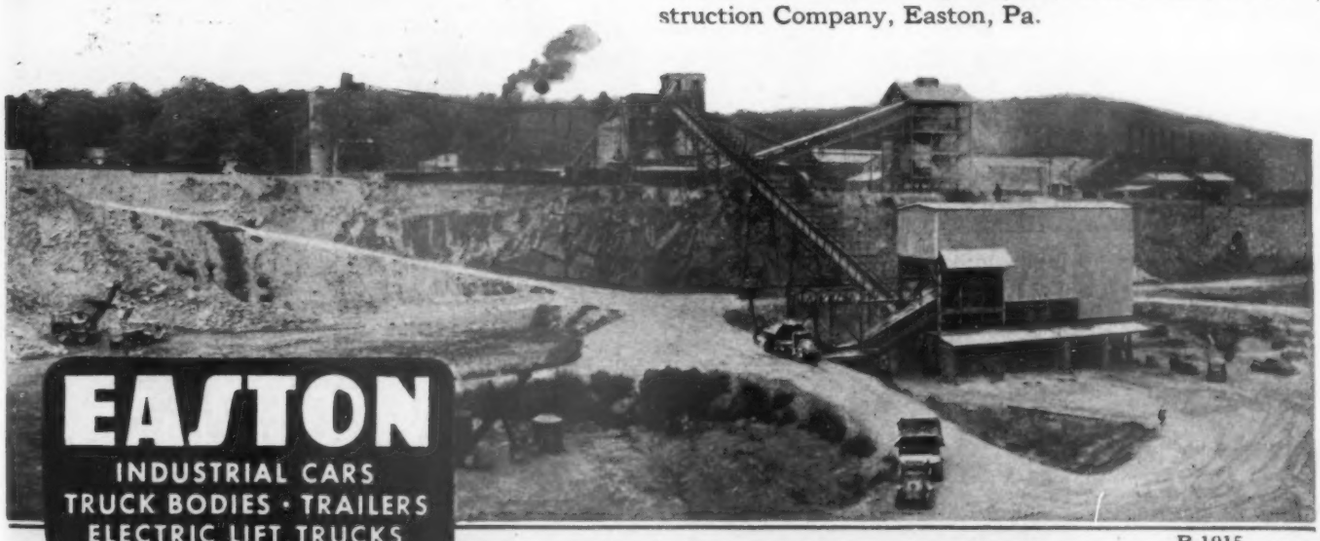
"Day after day the tractor-trailers move from quarry face to primary crusher . . . quietly, smoothly, and with no evidence of strain on either men or equipment."

"After six months' operation our records show no lost time charged to this system of conveyance . . . one which we consider to be the ultimate in a mechanized quarry operation."

This statement by Mr. Wilson, General Superintendent of the Lime Division, comes after conversion to EASTON Model TR-10 Semi-Trailers.

Semi-trailer haulage really pays dividends!

Write to: Engineering Counsel, Easton Car & Construction Company, Easton, Pa.



EASTON
INDUSTRIAL CARS
TRUCK BODIES · TRAILERS
ELECTRIC LIFT TRUCKS

B-1015

PIT AND QUARRY, March, 1945, Vol. 37, No. 9. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $2 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $1 additional for each year. Single copies 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1897.

What makes this Upson-Walton Wood Block a Better Wood Block?

THE wood block is the earliest form of tackle pulley-block. Centuries old, made originally with rope straps, then with iron and finally with steel, it became a more efficient, sturdier hoisting tool as time progressed—until today, in Upson-Walton wood blocks, we have hoisting strength undreamed of by its early users.

UPSON-WALTON SHELLS ARE BEST QUALITY HARD WOOD specially chosen for strength. Wood is well seasoned, free from knots and hearts which would weaken it. This shell is unusually hard wearing and long lasting.

SHEAVES ARE MADE FROM CLOSE-GRAINED GREY IRON, hence they are stronger. Closely inspected to exclude all blow-holes, pits and other weakening inclusions.

SHEAVE RIM AND CENTER PIN ARE CONCENTRIC. Center pins are made of cold rolled steel. Unusual care is taken by Upson-Walton to insure true-running sheaves. Close tolerance between sheave bearing and center pin results in longer life for the bearing.

HEAVY STRAPS AND DROP FORGED CONNECTIONS of selected fine grain steel give Upson-Walton wood blocks greater strength and a higher safety factor.

HEAVIER DROP-FORGED HOIST HOOKS *. . . not the usual and weaker round stock type, but specially-designed, heavy-duty hoist type as used on cranes and heavy equipment. Permits greatly increased safe-working loads.* Majority of Upson-Walton wood blocks are now equipped with this type hook.

AS WE GO TO PRESS, DELIVERIES ON ALL SIZES OF UPSON-WALTON WOOD BLOCKS ARE GOOD

ALL UPSON-WALTON WOOD BLOCKS ARE FURNISHED COMPLETE WITH BECKET

Established 1871

THE UPSON-WALTON COMPANY

Manufacturers of Wire Rope, Wire Rope Fittings, Tackle Blocks

MAIN OFFICES AND FACTORY: CLEVELAND 13, OHIO

114 Broad Street, New York 4 · 737 West Jackson Boulevard, Chicago 6 · 241 Oliver Building, Pittsburgh 22

This CRAWLER is DIFFERENT!

It is one of the many exclusive features that make the Northwest a better shovel for the mine, quarry and pit—one of the features that make it a *real* Rock Shovel.

Steering is fully controlled from the cab (regardless of its position) and when equipped with Differential Steering, positive traction is maintained on both crawlers while turning, as well as when going straight ahead, making it possible for Northwests to maneuver over rough pit floors that give other crawlers difficulty.

All gears are fully enclosed and protected and small crawler rollers prevent the jamming up of treads as sometimes occurs with large crawler rollers when traveling over rails, rocks, timbers or other similar obstructions.

Let's get acquainted! There are lots of other features that make Northwests a better shovel for the mine. We'd like to have you know more about them. Let us send you complete details on the size machine that will fit your future plans.

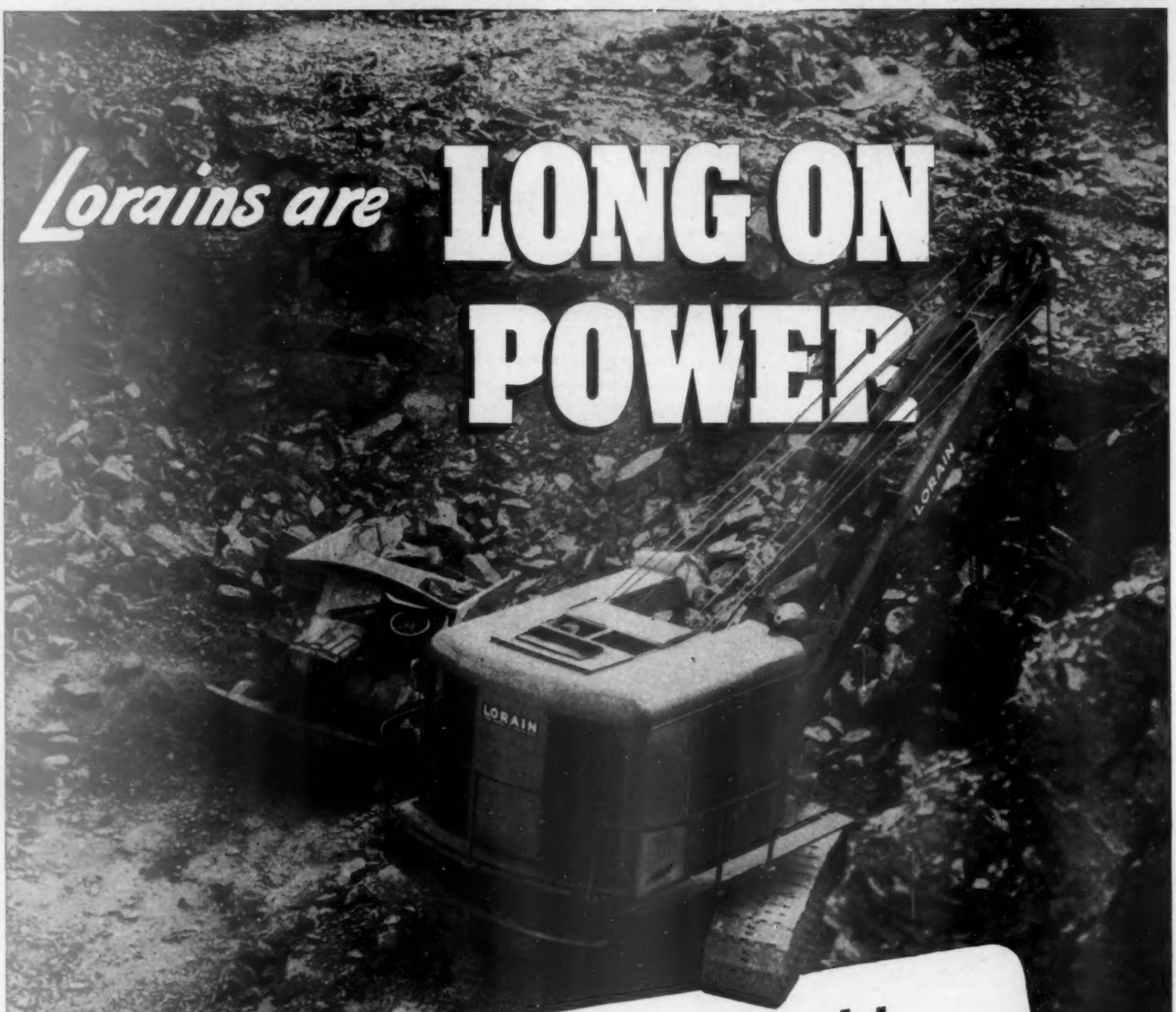
Quick shovel information for the man that O.K's the purchase of shovels.

NORTHWEST ENGINEERING COMPANY
1806 Steger Building 28 East Jackson Boulevard
Chicago 4, Illinois

If it's a real Rock Shovel you won't have to worry about output in dirt

NORTHWEST

CONVERTIBLE FOR ANY MINING MATERIAL HANDLING OR EXCAVATION PROBLE



Lorains are LONG ON POWER

—And Short on Shock!

NO job is too tough for a 2 yd. Lorain 82—the real rock shovel. This husky machine has plenty of power and extra rugged construction—but it has something even more valuable for rock work. And that's a life-saving shock absorber in the form of a hydraulic coupling!

This heavy-duty fluid coupling provides a perfect cushion between the engine and the load—eases strain on cables, boom and power transmission—increases machine life and cuts operator fatigue immeasurably. You'll never stall a Lorain 82 engine in rock or anything else.

Look into this real rock shovel now! You'll like the all-welded, all-steel boom; the center chain drive crawler and the all-steel dipper stick, too. Send for catalogs today.

THE THEW SHOVEL COMPANY • LORAIN, OHIO

Reg. Trade Mark

thew-Lorain SHOVELS

CRANES • DRAGLINES • MOTO-CRANES

BUILD BETTER *Superhighways*

. . . with Aggregate from the Cedarapids Morok . . .

High cost of materials no longer is a vital factor influencing the construction of the superhighways that will keep the nation's roads far ahead of traffic needs. Iowa has developed a complete line of equipment that achieves large volume production at lowest possible cost by skillfully taking advantage of all the factors influencing maximum and uniform production.

The Cedarapids Morok plant, for example, is an all-portable, super quarry crushing plant that handles material in a continuous flow from quarried rock to delivery trucks in one operation. The big primary will take any rock that will pass through the bottom of a 1¼-yard shovel. Production averages 150 to 200 tons of crushed rock per hour. The plant can be easily moved to and from quarry locations as jobs change. Your only competition will be another Morok owner.

If your aggregate producing or asphalt mixing equipment is not ready for coming postwar construction jobs, now is the time for you to improve your bidding position for production and profits. We invite you to investigate Cedarapids equipment.

IOWA MANUFACTURING COMPANY
CEDAR RAPIDS, IOWA

Cedarapids
Built by IOWA

THE IOWA LINE *of Material Handling Equipment Includes*

ROCK AND GRAVEL CRUSHERS
BELT CONVEYORS—STEEL BINS
VIBRATOR AND REVOLVING SCREENS

BUCKET ELEVATORS
STRAIGHT LINE ROCK AND GRAVEL PLANTS
FEEDERS — TRAPS

PORTABLE POWER CONVEYORS
PORTABLE GRAVEL PLANTS
REDUCTION CRUSHERS
BATCH TYPE ASPHALT PLANTS
TRAVELING (ROAD MIX) PLANTS

PORTABLE STONE PLANTS
DRAG SCRAPER TANKS
WASHING PLANTS
TRACTOR-CRUSHER PLANTS
STEEL TRUCKS AND TRAILERS
KUBIT IMPACT BREAKERS

SAVES TIME

New Socony-Vacuum Lubrication Service—designed especially for the Contracting Business—Brings You these great advantages!

TUNE IN "INFORMATION PLEASE"—MONDAY EVENINGS, 9:30 E.W.T.—NBC

MANY WAYS

WITH the lubricants you buy, are you getting the kind of service that *helps you beat contract dates?*

Compare and see if Socony-Vacuum doesn't offer more benefits—on the job—in your maintenance work —*wherever you need practical time-saving help.*

No matter how varied your equipment, you get precisely the right oil or grease for *every* application. This means maximum protection for hard-to-replace parts *without* the bother of special orders.

Our complete line of top-quality lubricants—PLUS regular on-the-job delivery service—saves interruptions . . . reduces inventory problems, cuts costs.

Your Socony-Vacuum Representative is always ready to work *with* your crews in making a careful analysis of time-losing problems. He'll supply you with field-tested maintenance schedules and cost-cutting ideas adapted to *your* individual needs—provide qualified engineering help and other practical aids.

Instead of merely getting fuels and lubricants, *you get complete on-the-job service when you buy Socony-Vacuum products.*

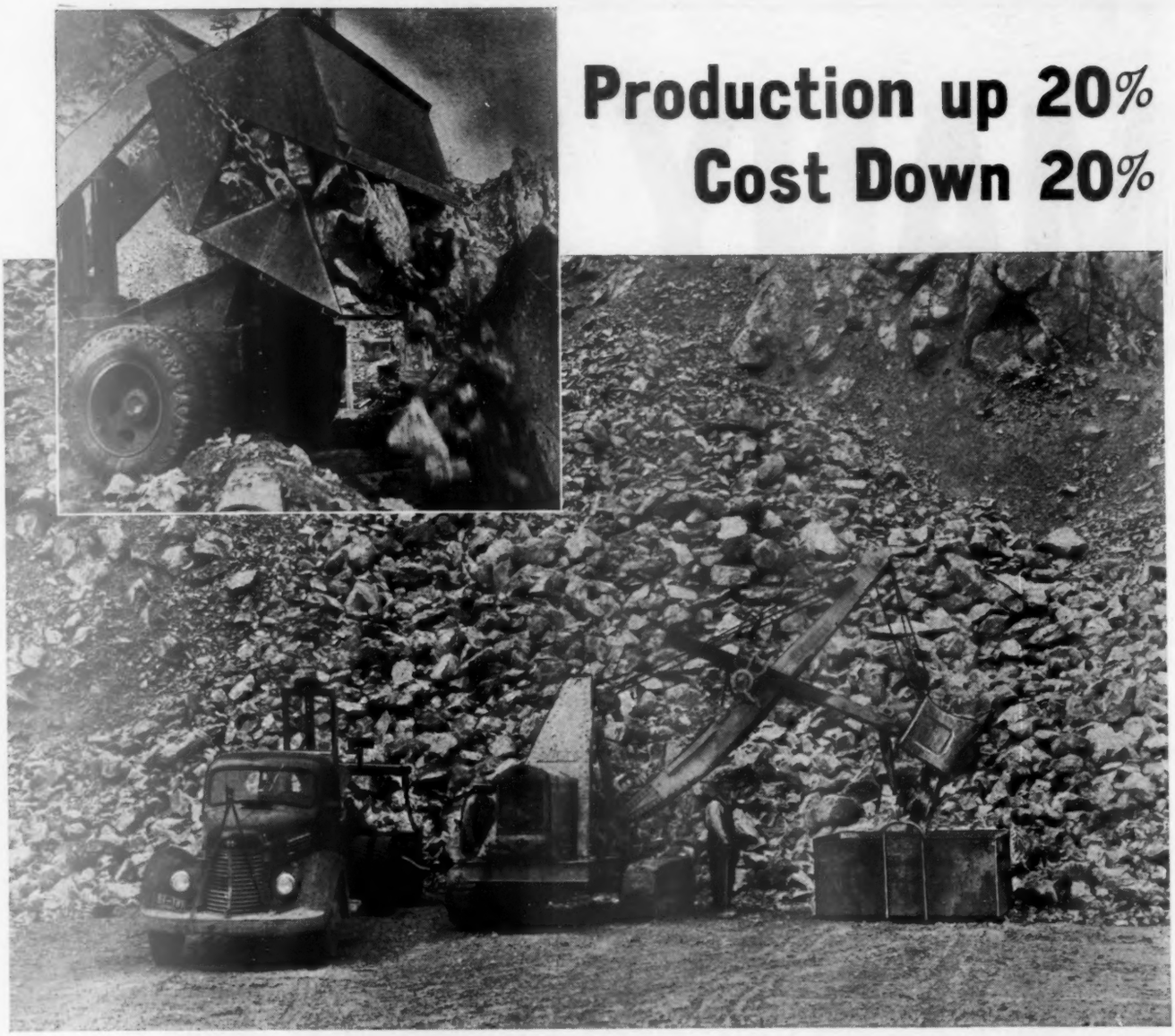
"ON YOUR STAFF—BUT NOT YOUR PAYROLL"—

Your Socony-Vacuum Representative

SOCONY-VACUUM OIL CO., INC., and Affiliates:
Magnolia Petroleum Co., General Petroleum Corp. of Calif.

CORRECT LUBRICATION FOR EVERY PART OF EVERY MACHINE YOU OPERATE . . .
PLUS
1 ENGINEERING HELP on time-losing operating problems; 2 TESTED MAINTENANCE SCHEDULES that minimize service man-hours—keep equipment on the job; 3 PROMPT, DEPENDABLE DELIVERY—a reliable, on-the-job service that eliminates inventory problems for you!

Production up 20%
Cost Down 20%

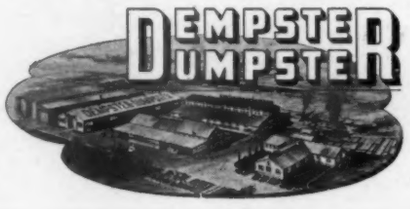


★ Here is a typical example of what takes place when a quarry changes over to the Dempster-Dumpster system of hauling material.

In the operation illustrated above—a large western limestone quarry—the method of hauling was changed from track and cars to a Dempster-Dumpster Unit and a number of detachable bodies. Although bodies are loaded by mechanical shovel, production has been increased 20% and costs of production reduced 20%. Where hand loading is the method used in loading the detachable bodies, production and savings are usually greater.

No amount of words can explain how simply and easily the Dempster-Dumpster can make such savings possible. But to see it in operation is all that is necessary to convince you that once put in operation, increased production and great reduction in cost are sure.

When one Dempster-Dumpster and a number of bodies can do the work of 3 to 5 conventional trucks, big savings in gas, tires, trucks and manpower are sure. Write for complete information. Dempster Brothers, Inc., 15 Springdale, Knoxville, Tenn., U.S.A.



FOR HOSE, BELTING, MOLDED GOODS, PACKING AND OTHER INDUSTRIAL RUBBER PRODUCTS built to the world's highest standard, phone your nearest GOODYEAR INDUSTRIAL RUBBER PRODUCTS DISTRIBUTOR.

GOODYEAR INDUSTRIAL RUBBER PRODUCTS
GTM-Specified COMPASS STEEL CABLE TRANSMISSION BELT
for Heavy-Duty Drives
The Goodyear Compass Steel Cable belt is bodied with multi-strand airplane-type cable spirralled continuously without a splice. Cable on opposing sides of belt axis is twisted in opposite directions to insure true running.
A PRODUCT OF GOODYEAR RESEARCH
GOODYEAR
THE GREATEST NAME IN RUBBER

HIGHEST POWER-LOAD CAPACITY

ever built into a transmission belt

On heavy-duty generators, compressors and other high-tension drives no belt can equal Goodyear's new **COMPASS** Steel Cable transmission belt in power-load capacity.

Built on the time-proved **COMPASS** principle—*but sinewed with endless multiple-strand steel cables in place of cotton cord* — this new belt is by far the strongest ever developed for service on "killer" drives. It withstands greater shock loads and higher tensions; has a longer flex-life than any multiple-ply, fabric-bodied belt — and is truly stretchless.

This means troublefree performance on belt-eating drives. It means you can handle higher peak loads, greater overloads without constant take-ups. And it means new equipment can be set up more compactly on shorter centers. Only Goodyear can offer such a belt because the **COMPASS** principle is patented by Goodyear, and because Goodyear has the longest successful experience in building steel cable belts.

For complete information on this new Goodyear "first," consult the G.T.M. — Goodyear Technical Man — or write Goodyear, Akron 16, Ohio, or Los Angeles 54, California, or phone your nearest Goodyear Industrial Rubber Products Distributor.

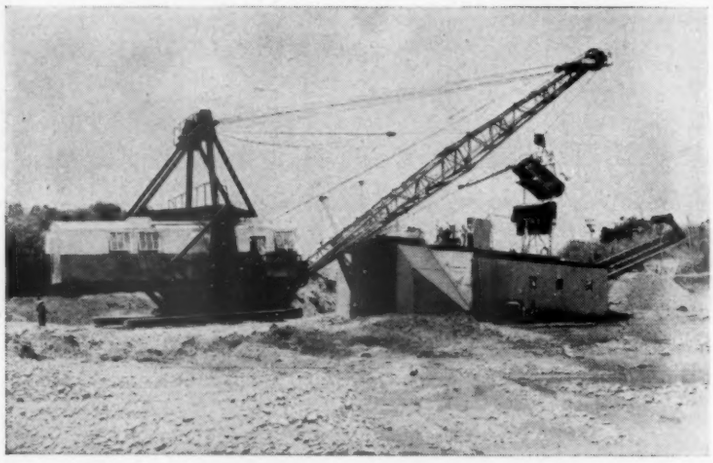
P. S. Specify Goodyear Compass Cotton Cord belts for regular-duty drives.

Compass—T.M. The Goodyear Tire & Rubber Company

With this New Clutch

YOU CAN SAVE

1. Space
2. Maintenance
3. Repair Cost
4. TIME



The FAWICK Airflex Clutch

1. Saves Space because it is compact and requires no springs, arms or toggles. It controls power by air.
2. Saves Maintenance because it requires no adjustments, no lubrication. Even corrects automatically for misalignment.
3. Saves Repair Costs because there are no parts to break or wear out. Has torsional flexibility—absorbs shocks and vibration.
4. Saves TIME because it permits dependable *full-time* operation, in the heaviest service.

• • •

The Fawick Airflex Clutch has proved its performance in hundreds of Naval vessels under combat conditions—and for heavy-duty drives throughout industry.

Ask our Engineering Department for recommendations.

FAWICK AIRFLEX COMPANY, INC. • 9919 Clinton Rd., Cleveland 11, Ohio

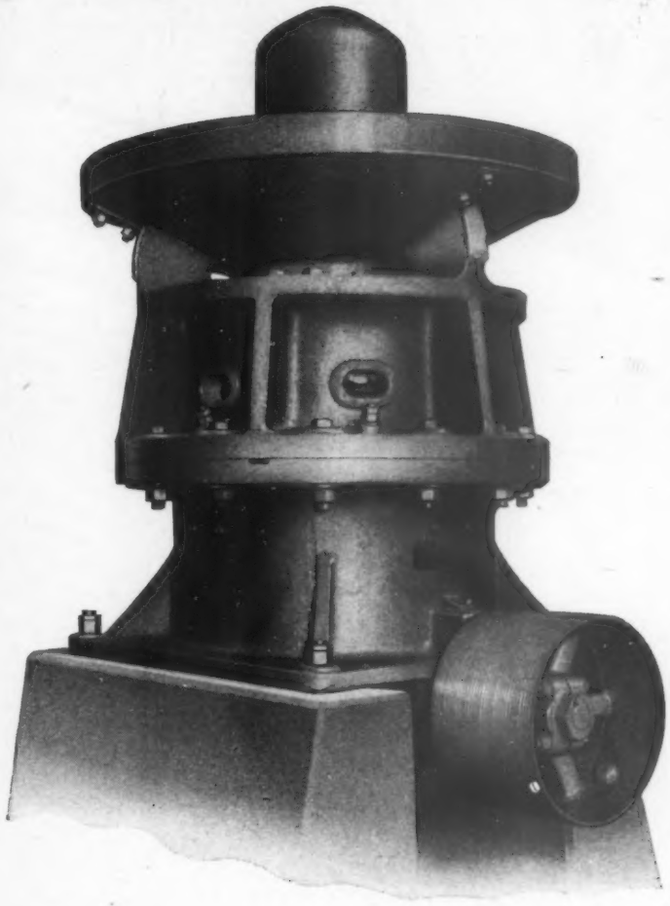
In Canada, Renold-Coventry Ltd., Montreal, Toronto, Vancouver

In Britain, Crofts Engineers, Ltd., Bradford, England

FAWICK *Airflex* CLUTCH

POWER CONTROLLED BY AIR

Multi-Stage



FINE REDUCTION CRUSHER

Is what its name says—it is really three machines in one and makes a finer cubical product—in greater capacity—at lower cost.

Two stages of reduction are used—the upper which does partial crushing and—feeds a uniform size product to—the lower stage in just the right quantity for final crushing.

This crusher has many advantages:

- Non-chokable at any setting
- Less horsepower required
- Minimum of slabby products
- Easy adjustment devices
- Automatic Lubrication
- Sealed to exclude dust
- Roller bearing Countershaft
- Cast Steel Frame

WE BUILD

Rotary Kilns
Rotary Coolers
Rotary Dryers
Rotary Slakers
Scrubbers
Evaporators
Jaw Crushers
Gyratory Crushers
Reduction Crushers
Crushing Rolls
Grinding Mills
Ball Mills
Rod Mills
Tube Mills
Pug Mills
Wash Mills
Feeders
Rotary Screens
Elevators

ASK FOR BULLETIN 1113

TRAYLOR

ENGINEERING & MANUFACTURING CO.

MAIN OFFICE AND WORKS — ALLENTOWN, PENNA., U.S.A.

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S. 2707 Rhyolite Rd.

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AGENCIES

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Balzer Machinery Co.
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Portland, Ore.

Pat Flanagan
Box 445
Tampa, Fla.

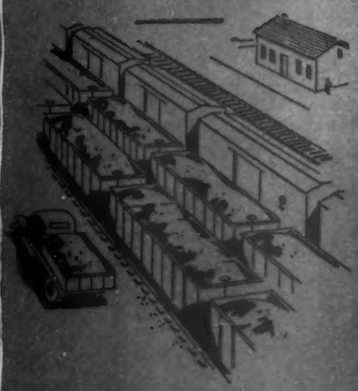
Indiana Equipment Co., Inc.
327 W. Market St.
Indianapolis, Ind.

W. H. Milroy
129 Church St.
New Haven, Conn.

Roy C. Whayne Supply Co.
Cor. 8th & Main
Louisville, Ky.

9% or 135 million highway dollars will be invested in cement.

8% or 120 million highway dollars will be invested in aggregate quarrying.



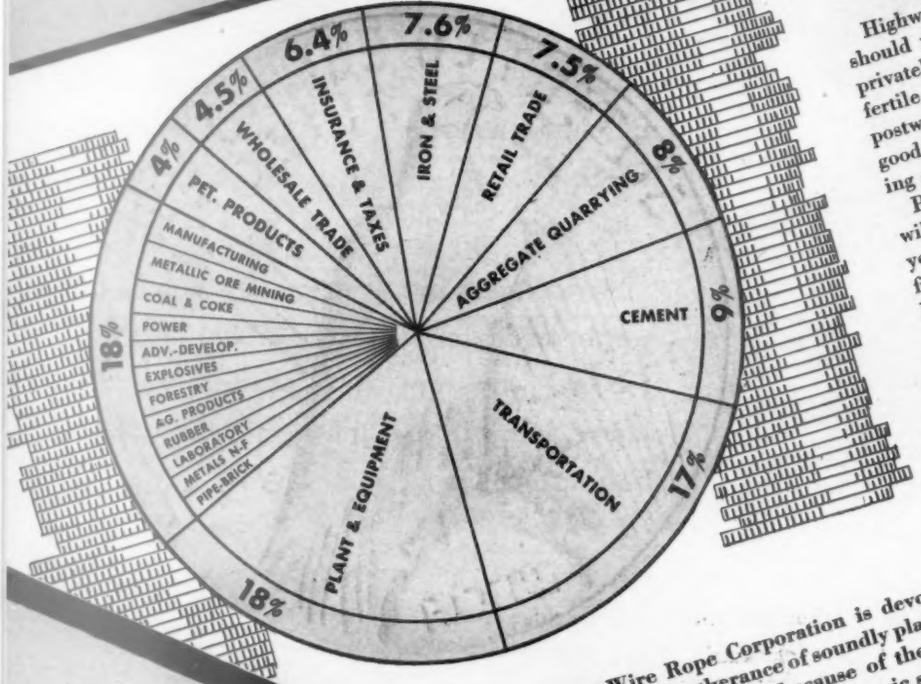
17% or 255 million highway dollars will be invested in transportation.

Approximately 14% or 210 million highway dollars will be invested in iron and steel, rubber, explosives and other manufactures including power.

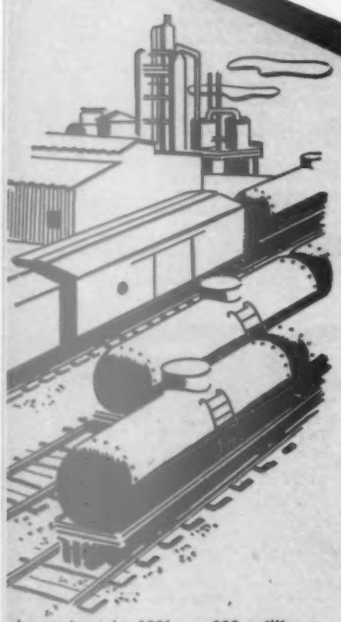
Here's How Public Construction Will Help Your Business

Highways, waterways and ground facilities for the airways should not, probably could not, be privately financed and privately operated for private profit. They are proper and fertile fields for the investment of public funds. No other postwar dollars can pay off so handsomely in millions of good jobs, in universal public benefits and in far reaching good business.

Probably the smartest and the busiest postwar dollars will be those spent for highways, roads and streets. How yours and twenty other branches of industry will benefit is shown on the chart. The studies of the U. S. Public Roads Administration, upon which it is based, also show that each dollar spent will result in business transactions totaling more than three dollars. Every citizen has an interest in the postwar highway building and other public construction programs. Workmen and business men have a double interest worthy of extra attention.



Union Wire Rope Corporation is devoting current advertising funds to furtherance of soundly planned public construction programs because of their historic ability to function as economic stabilizers such as will be needed at war's end.



Approximately 12% or 180 million highway dollars will be invested in petroleum, metals, coal and other products of the mines, forests and farms.

In all these industries and on the highway projects labor will receive the major share of the total investment.

18% or 270 million highway dollars will be invested in plant and equipment.

14% or 210 million highway dollars will be invested with wholesalers and retailers—8% or 120 million will pay taxes, buy insurance, advertising and laboratory development.

Is Your State or City Prepared To Gain Modern Highways, Roads and Streets BY MATCHING DOLLARS?

Both Houses of Congress have approved, and the President has signed, bills calling for 1½ billion dollars to construct postwar highways, roads and streets. Although bigger than any highway appropriation of the past, this is modest in comparison with the need as shown by studies of the U. S. Public Roads Administration, State and County highway officials and American Road Builders' Assn.

In order to utilize Federal highway funds, each state or municipality must be prepared with its own matching funds. In many states revenue from highway levies have been inadequate. In others it has been used for other purposes. If, for any reason, your state or community is not prepared to match the Federal funds allocated, no doubt your state legislators will welcome active public support of a highway building program in the 1945 legislative session.

As an aid in organizing and offering intelligent support, may we suggest that you study carefully the book entitled "The Road Ahead". It has been impartially compiled and published by the American Road Builders' Association and is highly informative on all phases of the vital subject of highways, roads and streets. For a free copy send the coupon below to either of the addresses given.

UNION WIRE ROPE CORPORATION
2132 Manchester Ave.
Kansas City 3, Missouri

AMERICAN ROAD BUILDERS' ASSOCIATION
Mr. Charles M. Upham, Engineer-Director
1319 F St., N. W., Washington 4, D. C.

Send a Free copy of book entitled "The Road Ahead"

NAME _____

FIRM _____

ADDRESS _____ CITY _____ ZONE ____ STATE _____

It pays to be a Bemis Multiwall paper bag Customer

EVEN though direct government purchases have taken a considerable part of our multiwall paper bag production this year, Bemis customers have not suffered . . . they have been supplied on the basis of past purchases, even in the face of the labor shortage and no increase in facilities.

Naturally, the demand for Multiwalls has been greater than the supply. Much as we regret inability to fill all orders, we have felt a responsibility to take care of our regular customers first. Fortunately, we've been able to do that—and right on schedule. If it's humanly possible, we'll keep on maintaining this service.

War or peace, we want our customers to feel that it pays to be Bemis customers.

NORTH
WEST EAST
SOUTH

A major reason we've been able to supply our Multiwall customers is the size and flexibility of our production facilities.

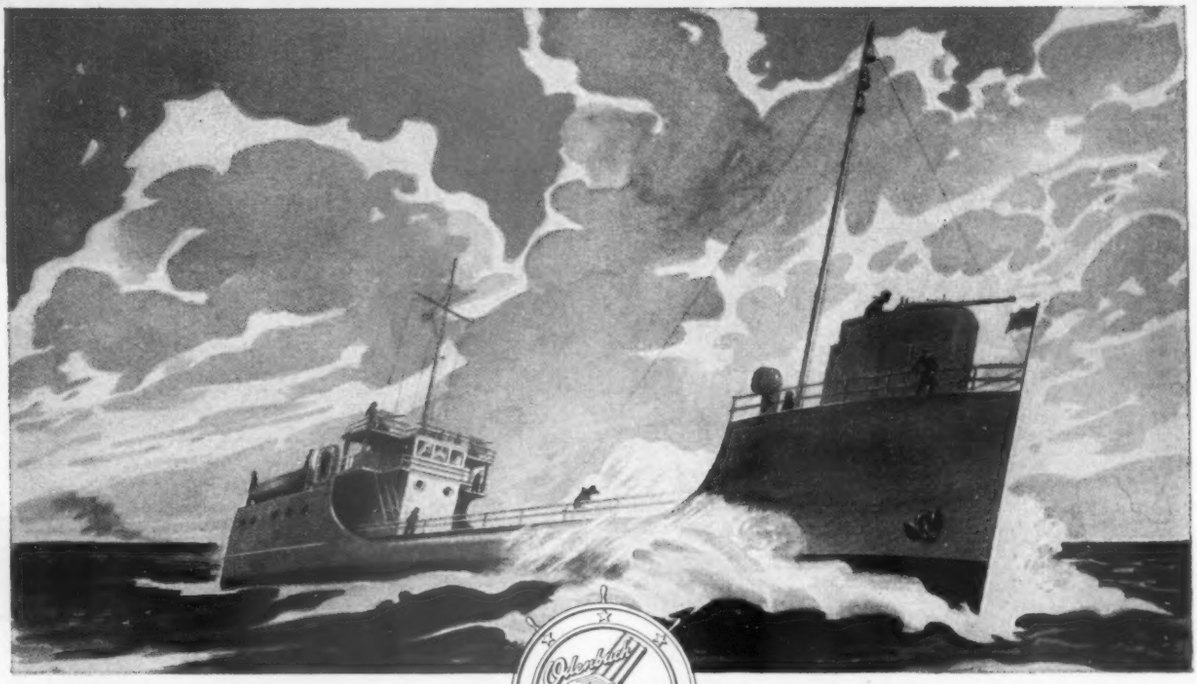
Bemis Multiwall Plants at

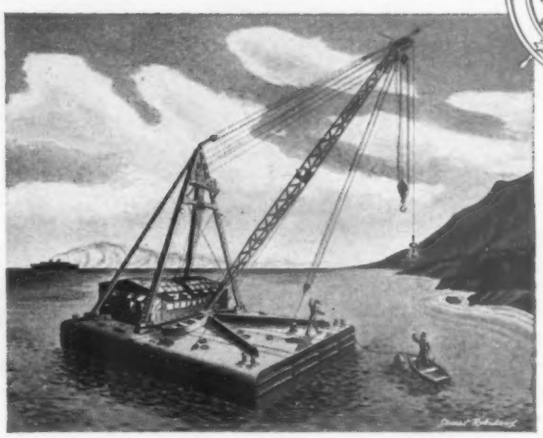
PEORIA, ILL.
EAST PEPPERELL, MASS.
MOBILE, ALA.
SAN FRANCISCO, CALIF.
WILMINGTON, CALIF.
ST. HELENS, ORE.

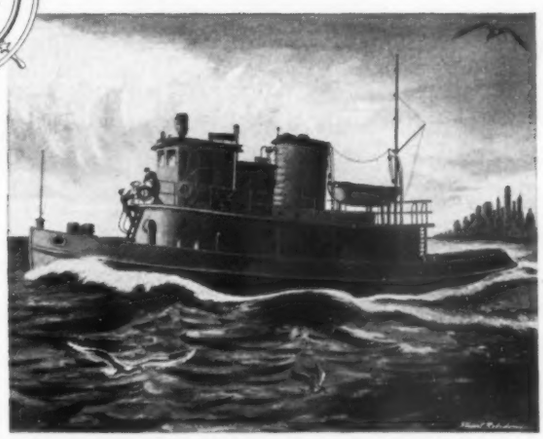
These plants not only give us large production, but also quick accessibility to all parts of the country.

BEMIS BRO. BAG CO. Baltimore • Boston • Brooklyn Buffalo • Charlotte • Chicago
Denver • Detroit • Houston • Indianapolis • Kansas City • Los Angeles • Louisville
Memphis • Minneapolis • New Orleans • New York City • Norfolk • Oklahoma City • Omaha
St. Louis • Salina • Salt Lake City • Seattle • Wichita

Odenbach







Builders of Steel Vessels

WAR TIME BUILDERS of U. S. Army Tankers, Derrick Barges, Utility Barges, Floating Cranes, Tugs serving the United Nations throughout the world.

PEACE TIME BUILDERS of ocean-going Tankers, Derrick Barges (knock-down type) Lake and Coastwise Freighters, Tugs, Trawlers, Barges for Inland Waterways.

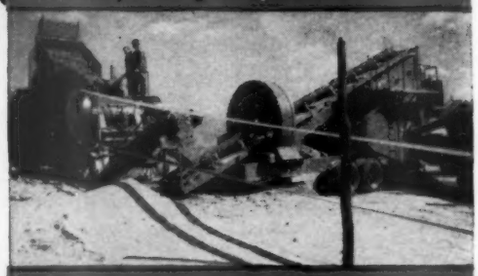
Write for our Booklet on Designs, Shipbuilding, Conversions and Repairing

ODENBACH HOLDING CORPORATION

21 WEST STREET • NEW YORK 6, N. Y.

FOUNDED IN 1906

Complete, compact "880" primary and secondary crushing plant. At left: Two part portable quarry plant; primary jaw crusher, and secondary crushing roll and screen.



This "822-Q" two-unit quarry plant averages 22,800 yds. monthly. Maintenance costs are low.

This practical gravel washing and sizing plant assures lowest cost per yard of material.

BUT, *we have young ideas about designing Crushing Plants . .*

When you buy crushing equipment—or any other kind of equipment, for that matter—the more it weighs, the more metal and labor have gone into it, the more it costs. We have long fostered the idea of cutting down weight and we have succeeded in doing so without reducing capacity or impairing efficiency. Compare modern Universal plants with heavier, bulkier plants and you will find that Universals will give you as much or greater output with even lower maintenance costs. Eliminating this excess baggage has made Universal plants easier on roads and easier to move.

Looking back over the past 39 years you'll find Universal engineers have never been idea-shy. Starting with the overhead eccentric jaw crusher, they have given the industry many developments which have become standard. In the coming postwar period, look to Universal for new developments—continued leadership.

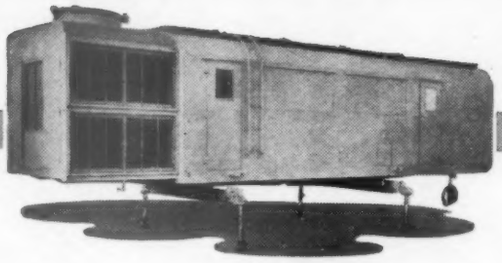
UNIVERSAL ENGINEERING CORP.
619 C Ave. West, Cedar Rapids, Iowa

No. 800 secondary crushing and screening unit steps-up output of a number of types of primary plants.

ARMY E NAVY

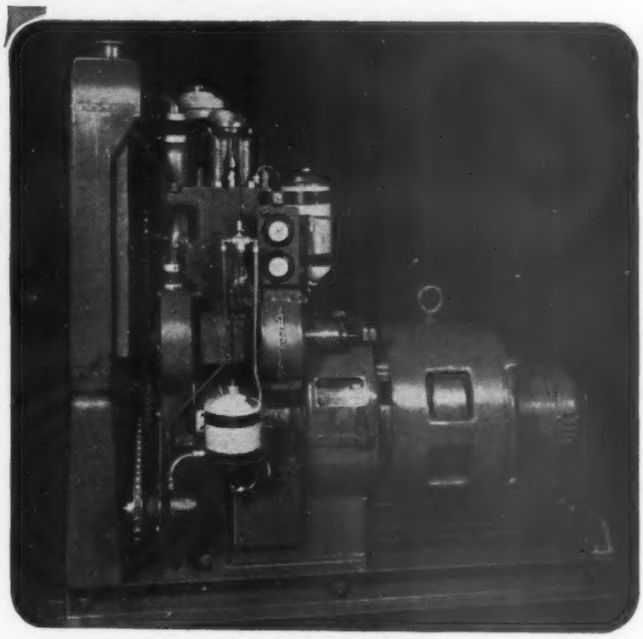
UNIVERSAL

ROCK AND GRAVEL CRUSHERS, CRUSHING ROLLS, HAMMER MILLS, COMPLETE CRUSHING AND SCREENING PLANTS, WASHING PLANTS, ASPHALT PLANTS, SPREADER-ROLLERS.



"Power to Spare" ...IS EXPENSIVE

THE NAVY FITS THE POWER PLANT TO THE JOB



5 KW Model 7 Sheppard Diesel Generating Set used as a standby for lighting in and around the 600 KW portable power plant shown above. 4" bore x 5" stroke; single cylinder; rated at 8 HP at 1200 RPM; variable speed governor control with 4% regulation; simplified Sheppard Fuel Injection System.

NAVY ENGINEERS know that operation of a large power unit to carry a light load is injurious to its continued efficient operation. It also wastes fuel. That's why they provide a 5 KW Sheppard Diesel Auxiliary Generating Set in the 600 KW portable generating plant shown at top. This auxiliary unit is used when the power load is only a fraction of the main plant's capacity. It's also available for *emergency* lighting while the main plant is being serviced.

If there are times when *your* power requirements are below normal, take a tip from the Navy. Cut operating and maintenance costs. Install a Sheppard Diesel Auxiliary Generating Set. It provides low-cost electricity . . . low-cost power . . . because it operates efficiently on the cheapest fuel obtainable. A limited number are now available. Let us advise you how to obtain WPB approval. Mail coupon for free literature today.

POWER UNITS; 8 to 50 HP • GENERATING SETS; 3 TO 30 KW

Sheppard
ALL AMERICAN DIESEL GENERATING SETS

R. H. Sheppard Company
613 Middle St., Hanover, Pa.

Please send me free literature describing Sheppard Diesel Generating Sets.

Name----------

Firm Name----------

Address----------

Rig Your Hungry Buckets with

Purple Strand FORM-SET

THIS diesel-driven fellow isn't much concerned with his table manners. He opens his mouth, gathers in a big load at a single bite, and then expels it many yards distant. But he gets results, and that's what counts with the boss.

These results are affected materially by the wire ropes on boom and bucket. If they're Purple Strand ropes (the finest Bethlehem makes), they're going to give the crane plenty of lifting power, plenty of muscle to heft and swing the tonnage.

And here's a sound tip for men engaged in earth-moving work. On crane, shovel, and dragline jobs, the rope often curves around sharp bends—as, for instance, the sheaves and drums. So the logical choice is Purple Strand Form-Set; that is, Purple Strand that's been preformed.

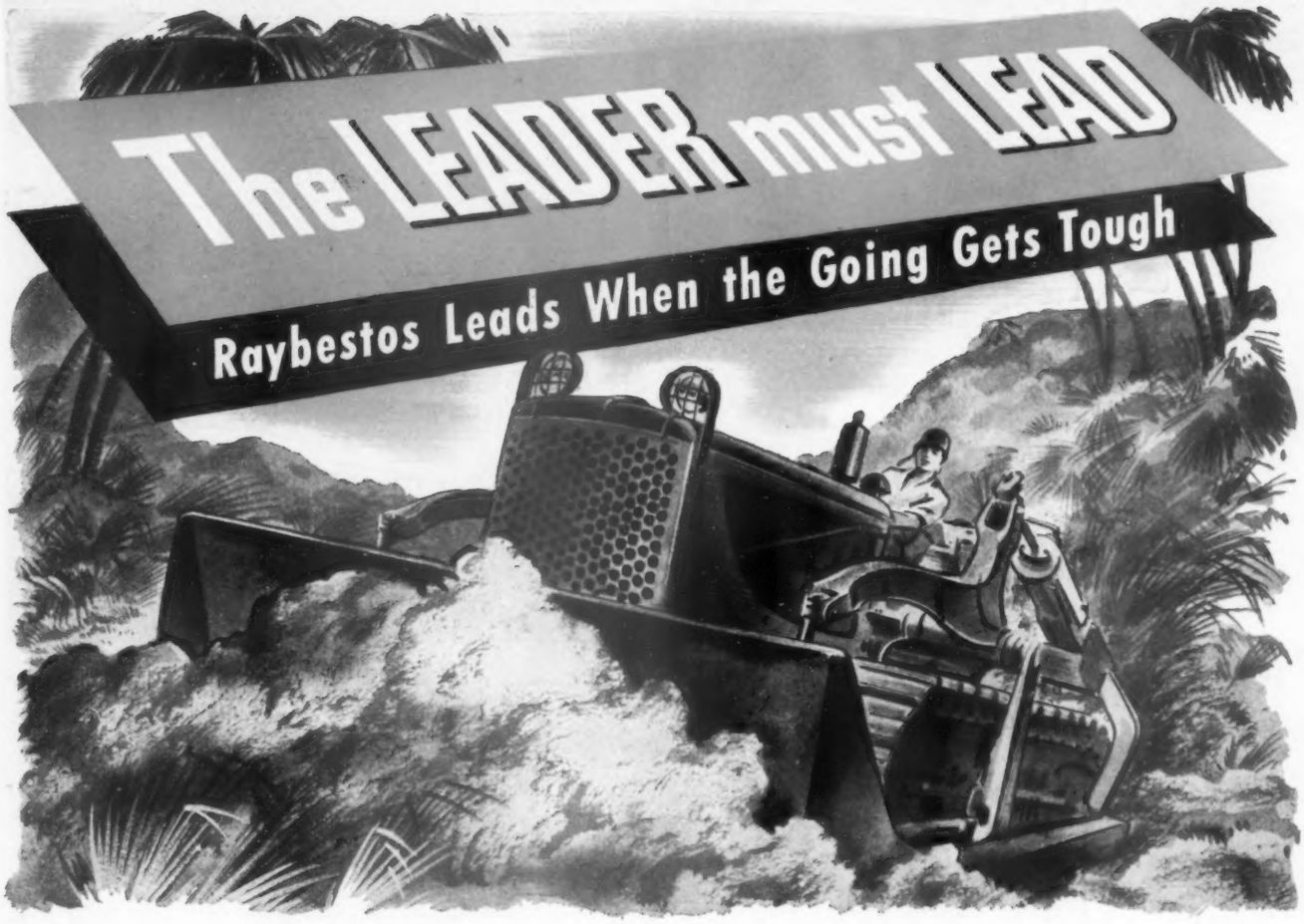
Preforming takes "wildness" out of wire rope. It relaxes the rope, makes it more pliable. Also longer-lasting; for, with the tension gone, so are many internal stresses that sometimes shorten rope life.

If you want rope that doesn't get tired easily, write Purple Strand Form-Set into your next order. It will pay off in longer service and dollars saved . . . and you'll like the way it handles, too.

When you think WIRE ROPE . . . think BETHLEHEM

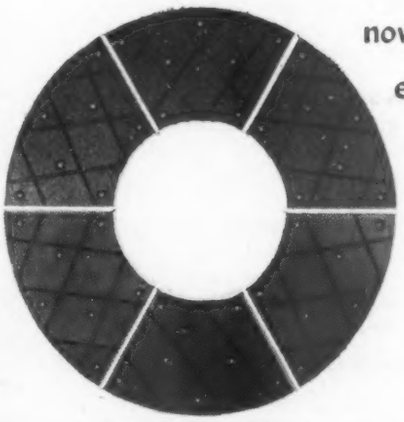
The LEADER must LEAD

Raybestos Leads When the Going Gets Tough



It stands to reason that Raybestos Friction Materials which control the 1000 h.p. of an army tractor operating on the world's toughest terrain, will control any industrial equipment ever built or ever likely to be built. ★ The same Raybestos engineering leadership, and even many of the same materials, that have successfully met war's "impossible" friction demands, go into the new and improved Raybestos Industrial Friction Materials now available for you. ★ The leader must lead. Raybestos experience gives you products that lead in performance and service.

THE RAYBESTOS DIVISION of *Raybestos-Manhattan, Inc.*, BRIDGEPORT, CONN.



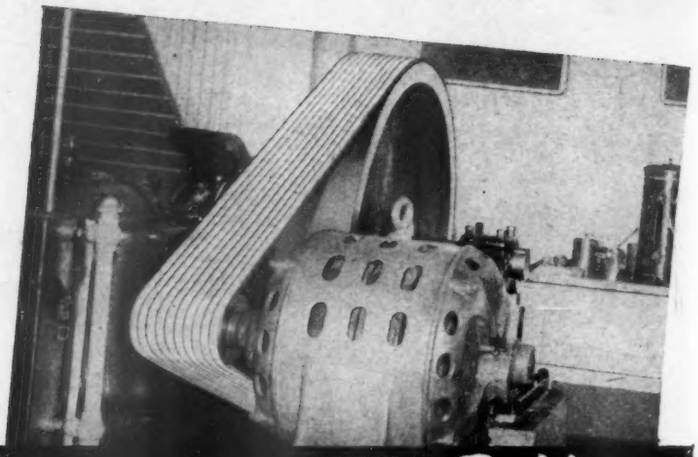
Ray-Metl Master Clutch Facing for Tractors. A composition of asbestos and fine metallic powder.

Raybestos

INDUSTRIAL FRICTION MATERIALS

BUY *ANOTHER* BOND

MANUFACTURING THE MOST COMPLETE LINE OF HIGHEST QUALITY METALLIC AND NON-METALLIC BRAKE LININGS AND CLUTCH FACINGS FOR EVERY TYPE OF EQUIPMENT, WAR AND CIVILIAN. ALSO FAN BELTS AND HOSE.



an important fact

GATES *Synthetic Rubber* V-Belts

—are *TODAY* Giving *BETTER SERVICE* Than *ANY* V-Belts Built *Before the War!*

and the Reason for it

When our Army's tanks, tractors and self-propelled big guns were being built, it was found that no V-Belts built by anyone before the war could stand the service that is now being delivered on the battlefield by V-Belts that Gates has developed especially for these heavy combat units. And Gates is building these V-Belts entirely of synthetic rubber.

✳ **The fact that Gates developed these belts—and is building them of synthetic rubber—is important to you now because every improvement developed by Gates for these Army belts has also been added, day by day, to the quality of the Standard Gates Vulco Ropes which are being delivered to you.**

As you know, wartime improvements in many other products must be withheld from general use until after the war is won—but victory depends so directly upon production, and production so directly upon V-Belts which drive the producing machines, that Gates has been able to give you immediately in your Standard Gates Vulco Ropes, every V-Belt improvement which Gates specialized research has developed for use on the Army's motorized equipment.

These are the simple reasons why you are finding that your Standard Gates synthetic rubber Vulco Ropes are today giving you better service than any V-Belts that were ever built before the war.

THE MARK OF Gates SPECIALIZED RESEARCH

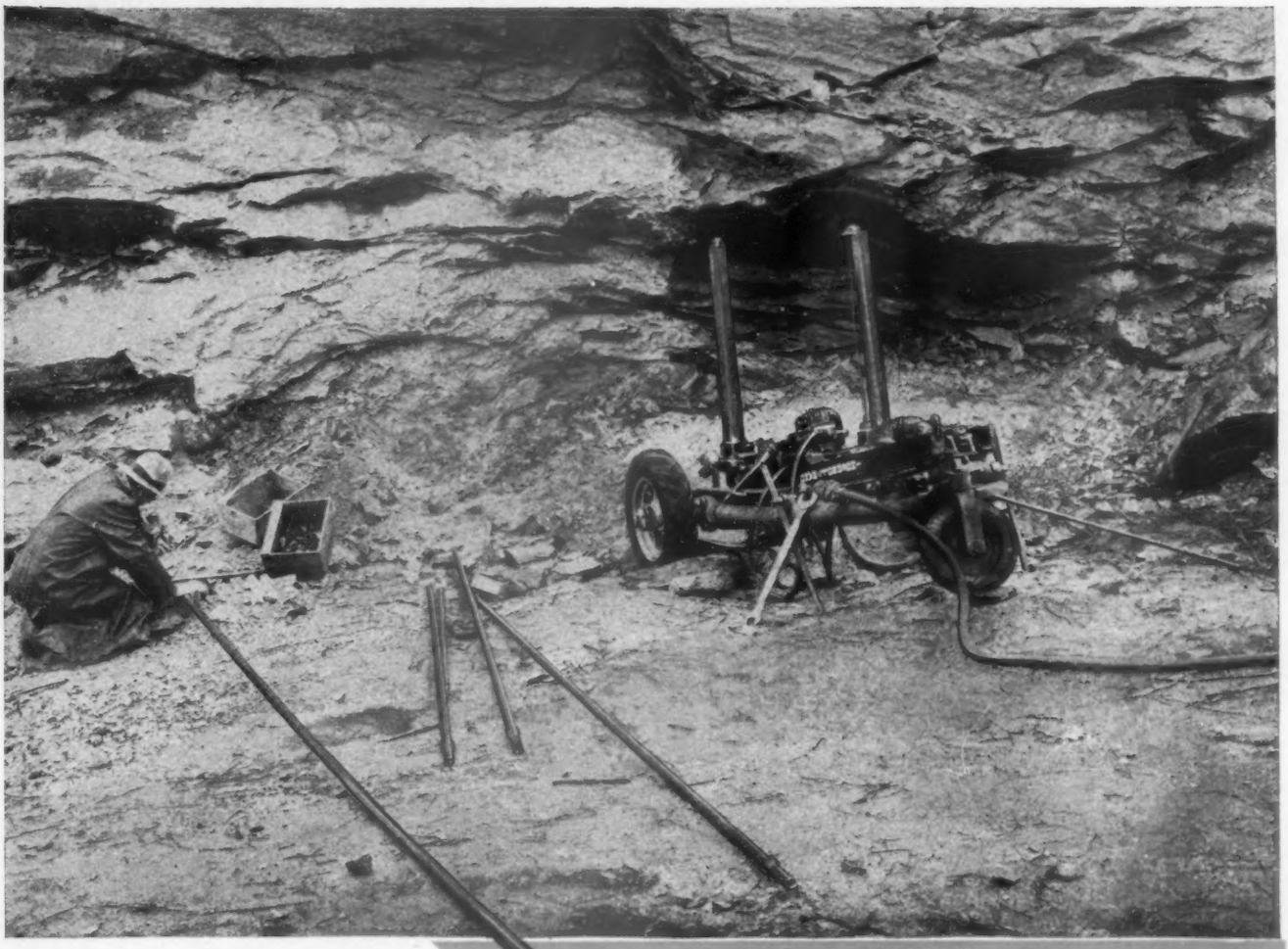
THE GATES RUBBER COMPANY

Engineering Offices and Jobber Stocks in All Large Industrial Centers

453

GATES VULCO ROPE DRIVES

CHICAGO 6, ILL. 549 West Washington. NEW YORK CITY 3, 215-219 Fourth Avenue ATLANTA 3, GA., 738 C. & S. National Bank Bldg.
LOS ANGELES 21, CAL., 2240 E. Washington Blvd. DENVER 17, COLO., 999 S. Broadway DETROIT 4, MICH., 8663 Grand River Ave.
PORTLAND 9, ORE., 333 N.W. 5th Ave. DALLAS 2, TEXAS, 1710 N. Market St. SAN FRANCISCO 3, CAL. 1090 Bryant St.



POWER FOR DEEP HOLES with I-R Wagon Drills

The X71-WD drill, that is used on FM-2 Wagon Mountings, has the power required to turn long drill steels and to provide the slugging blow necessary to maintain high drilling speed in deep holes. The piston is the heaviest used in any hammer drill, and has an extremely long stroke. It hits a heavy blow and its unique follow-through characteristic overcomes the inertia of long, heavy drill steel. Strong rotation results, hence the bit is always taking deep, fresh bites in the rock. The cuttings are easily removed by the drill's unusually effective method of hole cleaning.

The flexibility of the FM-2 Wagon Mounting permits the use of the powerful X71-WD drill in all kinds of ground. Holes can be drilled at any angle—wherever you want them. If you have a tough job of drilling to do, these are the Wagon Drills to use. Your footage per shift will be greater and your costs lower.

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y. 5-575

COMPRESSORS • TURBO BLOWERS • ROCK DRILLS • AIR TOOLS • CENTRIFUGAL PUMPS • CONDENSERS • OIL AND GAS ENGINES

For any material and any haul Euclids are your best bet!

No matter what your off-the-highway hauling problem may be . . . big loads . . . steep grades . . . short or long hauls . . . Rear-Dump and Bottom-Dump EUCLIDS will move more pay dirt faster and at lower cost. Built in every part for tough hauls, Euclids combine minimum vehicle weight with maximum power and strength for large capacity off-the-highway hauling.

Fast, easy loading with modern excavating equipment . . . speed in hauling and dumping . . . rugged dependability day in and day out . . . these are reasons why leading contractors and industrial users of hauling equipment are cutting costs and increasing production with Euclids . . . reasons why Euclids are *your* best bet for any material and any haul.

Write for your copies of two new books that show Rear-Dump and Bottom-Dump EUCLIDS at work on construction jobs and mine and quarry operations.

The EUCLID ROAD MACHINERY Co. · · · Cleveland 17, Ohio

EUCLID SELF-POWERED HAULING EQUIPMENT For EARTH ROCK COAL ORE

THE PROBLEM OF BEARING FAILURE

SUCH THINGS as load, speed and temperature have a very material effect on the life of automotive bearings. Sometimes bearing failures are caused by dirty lubricating oil. When the oil is contaminated with water, fuel, sand, dirt, carbon particles or finely divided metal, excessive wear in the bearings results. Present day driving conditions which tend to create low temperature sludge, clog oil lines and screens and result in burned out bearings.

A great many bearings are ruined by overloading (lugging) and overspeeding the engine; by such driving habits as the prolonged use of the engine as a brake in low gear, down long grades; continuous driving at top speeds; failure to shift gears on hard pulls.

WHY BEARINGS FAIL

1. FATIGUE FAILURE: Due to several causes. Among them: overloading; overspeeding; deflections of crankshaft; insufficient oil clearance or stoppage of oil supply; distortion due to poor fit of bearing inserts; out-of-round crank pins and crankshaft journals. As a result of fatigue failure, the bearing metal cracks and flakes out, the rod portion of the bearing failing first, then the bearing cap.

2. WEAR FROM DIRT: The result of infrequent draining and flushing of the crankcase or infrequent servicing of the air and oil bath cleaners.

3. WIPING: Friction heat often causes the bearing metal to melt and run, or to become soft and plastic. This in turn allows the bearing metal to wipe or smear against the harder metal surfaces of the crank pin or bearing journal, cracking and wiping the bearing metal. The causes for this failure are: lack of oil; plugged oil passages; clogged pump screen; worn oil pump; leaky oil pump suction line; broken oil lines or connections; misfit bearings.

4. CORROSION: Prolonged high speed driving and overloading will produce crankcase oil and bearing temperatures above 250° F. in most late model engines. At such temperatures most lubricating oils are subject to oxidation and consequent production of organic acids that are corrosive to bearing metals. The remedy is to use lubricating oils that won't readily form corrosive acids and to drain and flush crankcases frequently.

WATCH DRIVING AND SERVICING

To avoid bearing trouble, don't overload; don't brake with the engine for prolonged periods of time; don't use all your horsepower any more than you have to. Have your engine serviced at more frequent and regular intervals. Use only the best lubricating oil obtainable.

RING-FREE MOTOR OIL HELPS PREVENT BEARING FAILURES

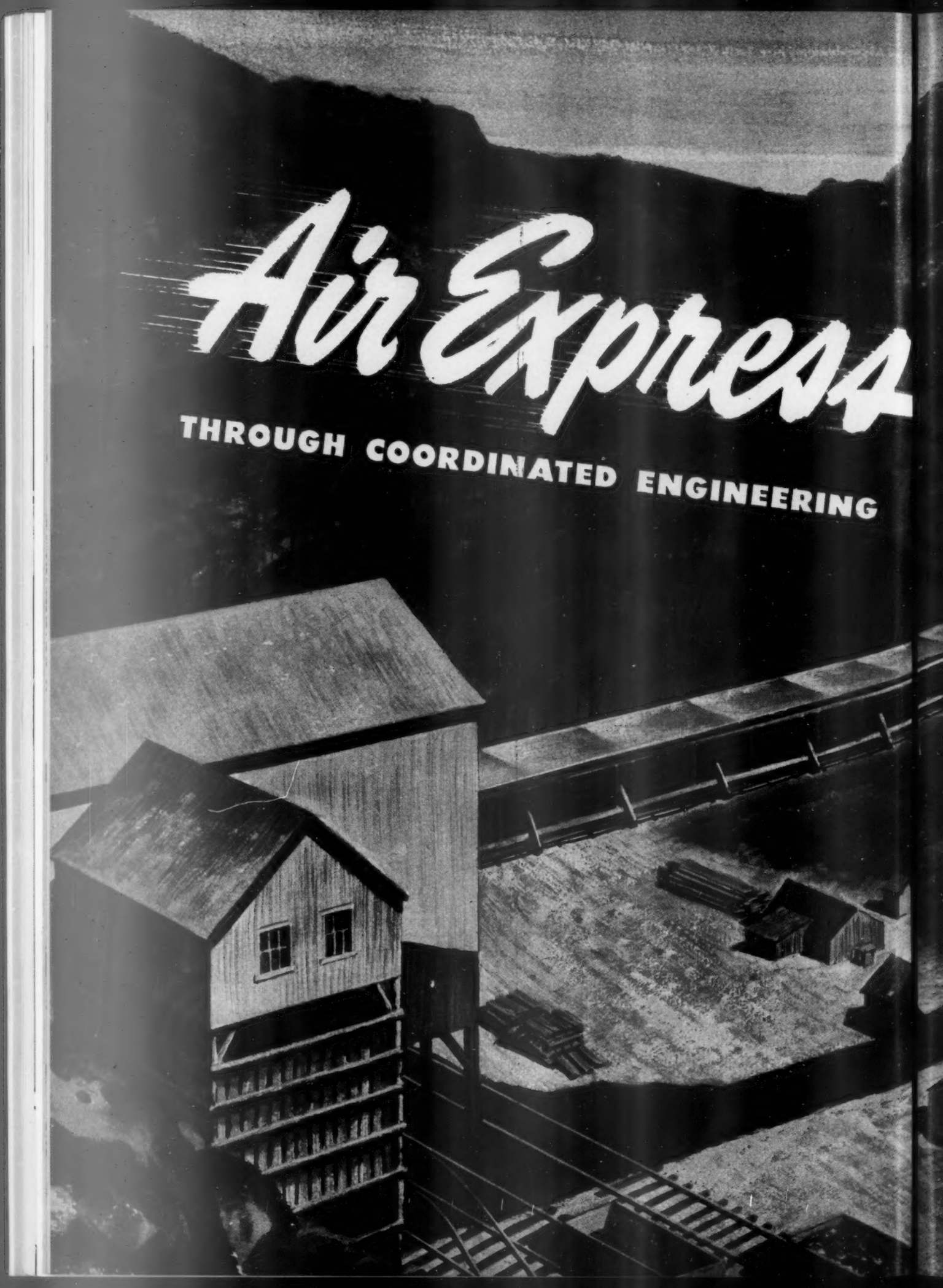
Macmillan Ring-Free Motor Oil has the properties that guard against bearing failure. It has high film strength; high heat resistance; a long cling to the vital parts of your engine; fast penetration. It has a cleansing action that washes away carbon particles, carrying them into the crankcase where these impurities are drained at time of oil change.

FREE FOLDER *on "Bearing Failures—Causes and Corrections"*—Send today for your copy. Address Macmillan Petroleum Corporation, Room 1014, 530 West Sixth Street, Los Angeles 14, California

MACMILLAN RING-FREE MOTOR OIL

MACMILLAN RING-FREE MOTOR OIL

MACMILLAN PETROLEUM CORPORATION—50 WEST 50TH STREET, NEW YORK • 624 SOUTH MICHIGAN AVENUE, CHICAGO 5 • 530 WEST SIXTH STREET, LOS ANGELES 14 • COPYRIGHT 1944, MACMILLAN PETROLEUM CORPORATION


Air Express
THROUGH COORDINATED ENGINEERING

An aerial short-cut to get coal from a hillside surge bin to a tipple, 594 feet distant across a valley, was decided on by the engineers in charge of operations at this Kentucky mine.

In planning this unusual installation, they called in designers of mechanical equipment and also United States Rubber belting engineers.

This three-way team worked together in developing a suspended conveyor system which has proved highly successful.

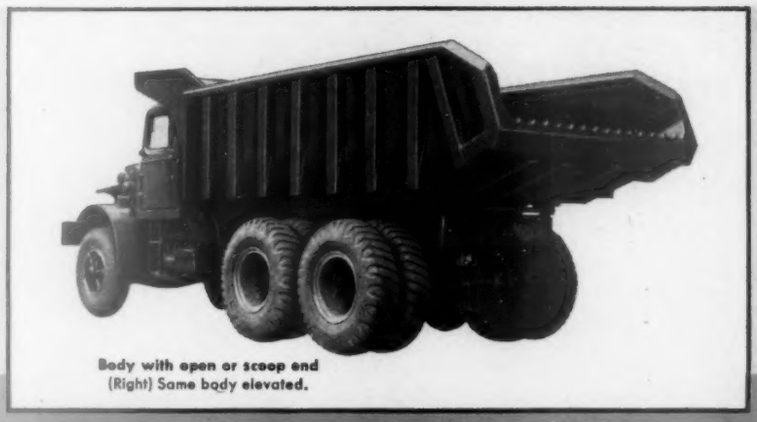
The 48-inch U. S. Rubber Belt installed was specifically engineered for the job. In descending from the mine to preparation plant it develops power which is returned to the line.

Coordinating efforts with those of mine or quarry operators and equipment manufacturers is the rule with United States Rubber Company technicians on all conveyor belt installations. Broad experience in fabricating all types of belts, enables them to give you the expert service such important equipment deserves.

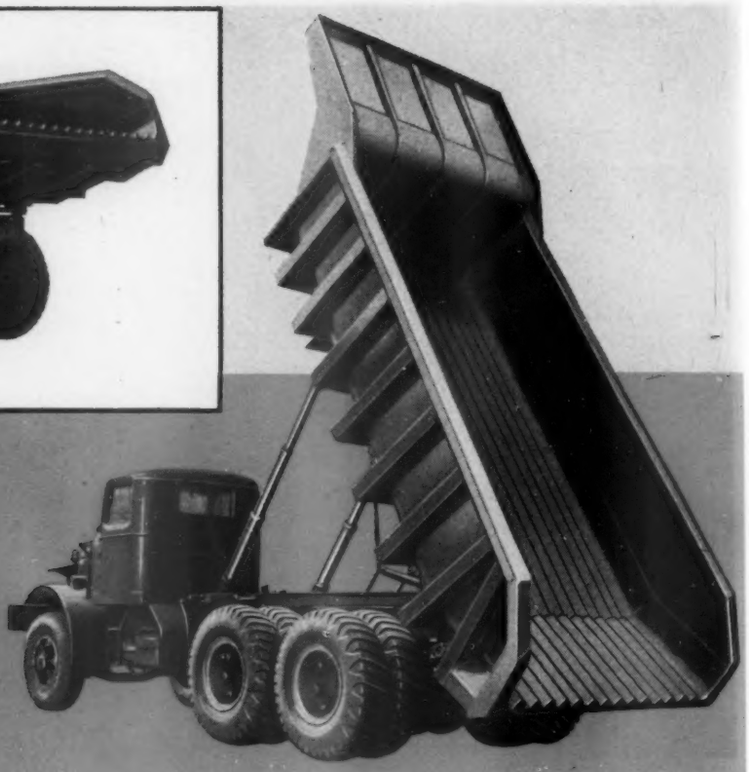
Serving Through Science

UNITED STATES RUBBER COMPANY

1230 SIXTH AVENUE, ROCKEFELLER CENTER, NEW YORK 20, N. Y.



Body with open or scoop end
(Right) Same body elevated.



X-112 BODIES *and* T-4440 HOISTS *for* OPEN PIT MINING

Body with automatic
downfold tailgate.

Fleets of Trucks, equipped with Gar Wood X-112 Bodies and T-4440 Hydraulic Hoists, are hauling the biggest loads ever moved by trucks on production schedules. Lower mining costs have been made possible by speeding up the handling of overburden, ore and coal.

SPECIFICATIONS

HOIST—Hydraulic, twin cylinder, telescopic.

PUMP—Gear type with aluminum wearplates.

POWER-TAKEOFF—2-gear single speed.

BODY—Heavy duty with pressed-steel, box-type side braces and cross members.

BODY SHELL—¼" sheet steel with 2" wood filler.

WEARPLATE—¼" with floor angles or 5/16" without. Longitudinals 8-inch "H" beams.

CAB SHIELD—¼" plate.

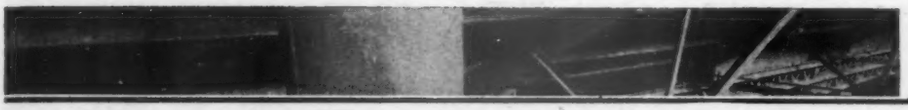
FLOOR ANGLES—Optional.

Automatic gate
opens as body
elevates.

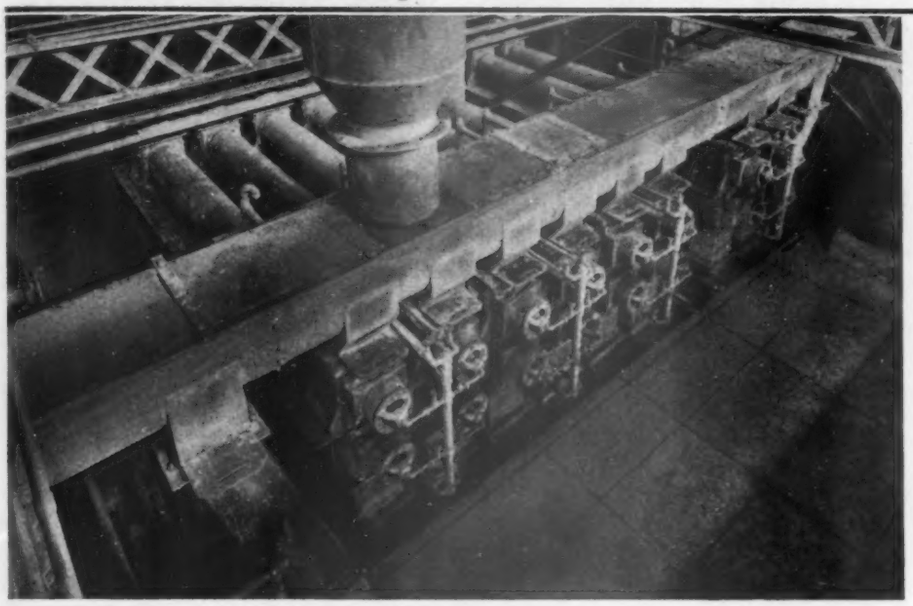
GAR WOOD INDUSTRIES, Inc., Detroit 11, Michigan

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

WORLD'S LARGEST MANUFACTURERS OF TRUCK AND TRAILER EQUIPMENT



Satisfactory Performance . . . Result



4 more coolers ordered

FULLER

DRY PULVERIZED MATERIAL COOLERS

Write for Bulletin PMC-1, illustrating and describing the Fuller Dry Pulverized-Material Cooler.

The eight-unit Fuller cooler installation illustrated above, for cooling finished Portland cement and put into operation a few months ago, has proved so satisfactory that this particular company has ordered four more cooler units for installation in one of their other plants.

Every installation of Fuller Coolers has proved satisfactory. Performance has been everything expected of them and temperature of material delivered to storage has been sufficiently satisfactory to meet all required specifications.

Cooling of cement is becoming constantly more important and every consideration should be given to this question by every cement-plant operator. This cooler is simple in design and construction and can be installed under most any installation conditions.

We're ready to work with you on your cooling problems . . . no obligation on your part.

FULLER COMPANY

CATASAUQUA, PENNSYLVANIA

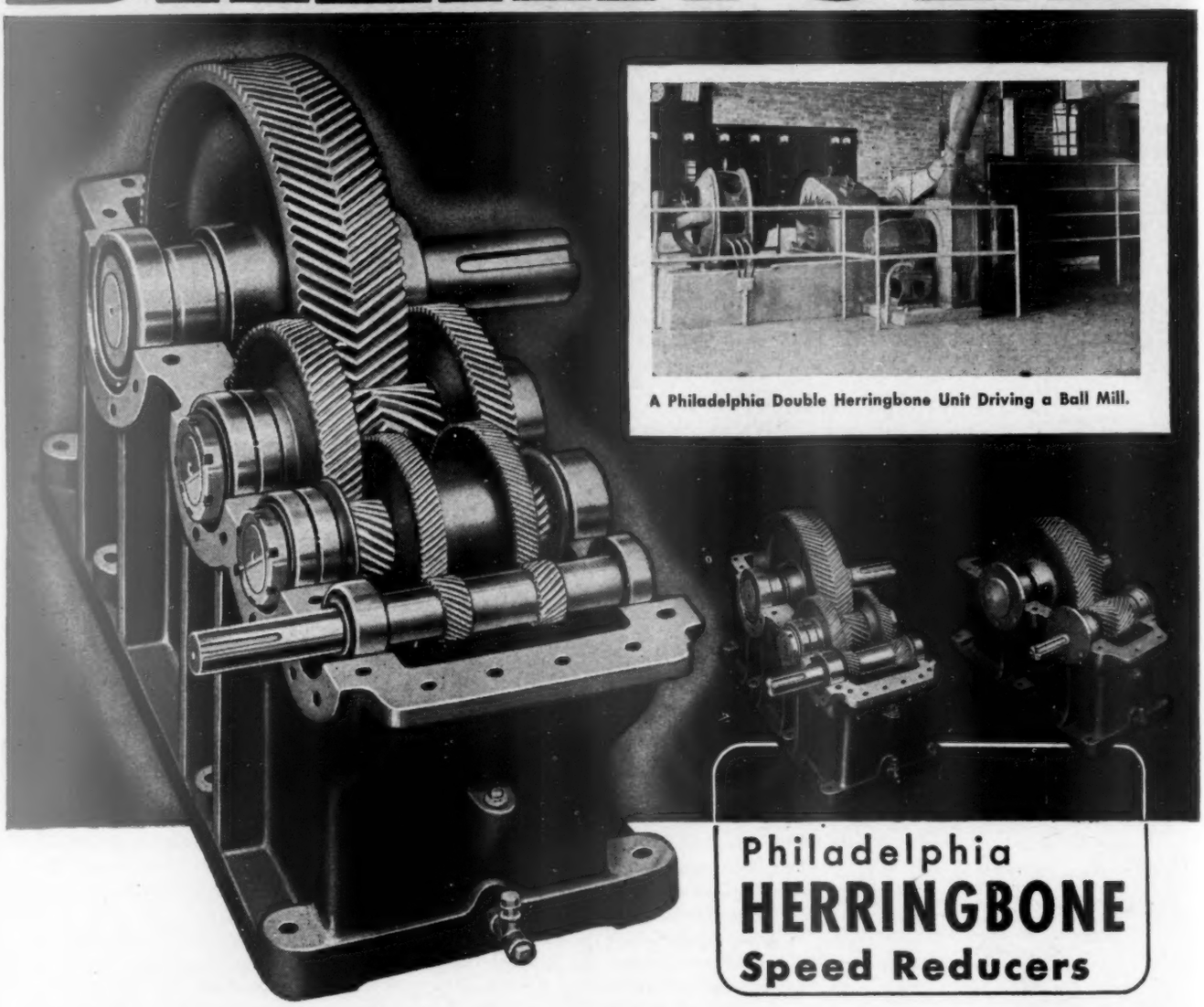
Chicago 3 · 1144 Marquette Bldg.
San Francisco 4 · 421 Chancery Bldg.
Washington 5, D. C. · 618 Colorado Bldg.

FULLER COMPANY

FULLER-KINYON, FULLER-FLUXO AND THE AIRVEYOR CONVEYING SYSTEMS . . . ROTARY FEEDERS AND DISCHARGE GATES . . . ROTARY AIR COMPRESSORS AND VACUUM PUMPS . . . AIR-QUENCHING INCLINED-GRATE COOLERS . . . DRY PULVERIZED-MATERIAL COOLER . . . AERATION UNITS . . . MATERIAL-LEVEL INDICATORS . . . MOTION SAFETY SWITCH . . . SLURRY VALVES . . . SAMPLERS

PMC-8

BALANCED



A Philadelphia Double Herringbone Unit Driving a Ball Mill.

Philadelphia HERRINGBONE Speed Reducers

so bearings share the load *equally*

Indicative of the well planned design features of Philadelphia Herringbone Reducers is the gear arrangement in the Double and Triple types. In these, the gears are located symmetrically with respect to the centerline of the housing rather than the offset arrangement. Two standard bearings are provided on each shaft with each bearing absorbing an equal load. Offset arrangements of herringbone gears would result in unequal bearing loads, while a similar arrangement of single helical gears imposes an additional load by the thrust action.

It is evident then that Philadelphia Herringbone Reducers with double helical gears spaced equidistant from the bearings in the first and intermediate reductions, with a continuous tooth herringbone gear set on the centerline for final reduction provides perfect balance and symmetry.

Philadelphia Herringbone Reducers are made in single, double and triple reductions, in ratios from 1.75 to 1 up to 300 to 1. These are but one of the complete line of all types of speed reducers that can meet practically any drive requirement in the rock products industry.

Write for Catalog H39

ARMY E NAVY

Philadelphia GEAR WORKS INCORPORATED

ERIE AVE. AND G ST., PHILADELPHIA 34, PA. NEW YORK • PITTSBURGH • CHICAGO

Industrial Gears and Speed Reducers
LimiTorque Valve Controls

More Ford trucks on the road

On more jobs

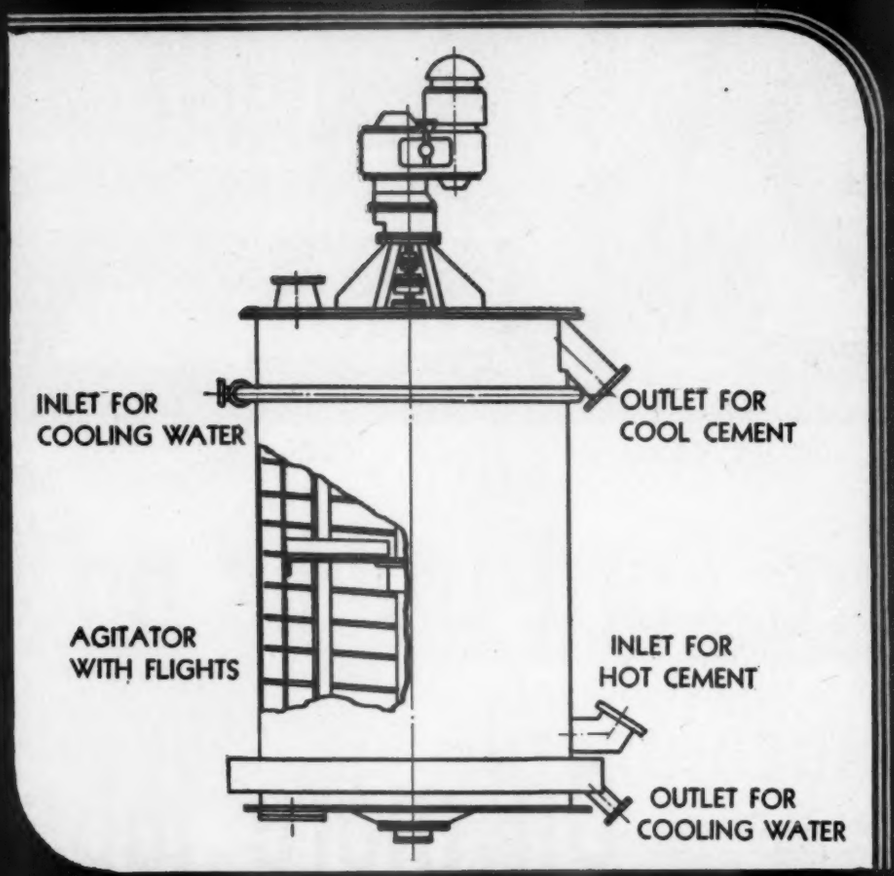
For more good reasons !

TRUCK-ENGINEERED

FORD TRUCKS
AND COMMERCIAL CARS

TRUCK-ENGINEERED AND TRUCK-BUILT BY TRUCK MEN

FOR COOLING HOT CEMENT



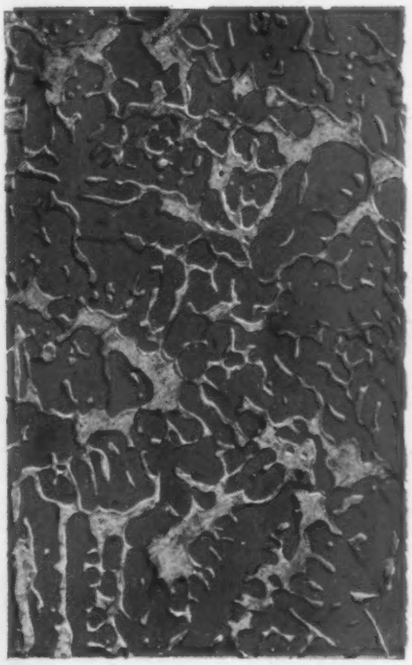
Cement manufacturers are frequently confronted with the problem of cooling hot cement to temperatures acceptable when making bulk shipments or for immediate packing in paper bags. The FLS Cement Cooler was especially developed for cooling hot cement. • The FLS Cooler consists of a tank, water-cooled externally, the cement being introduced into the bottom and conveyed in a thin layer along the inside of the water-cooled wall to the top, where it is discharged. Thus an intimate contact is established between the cement and the water-cooled surface, assuring high-cooling efficiency. • In addition to cement, the Cooler is applicable to many other similar dry pulverized materials.

F. L. SMIDTH & CO.

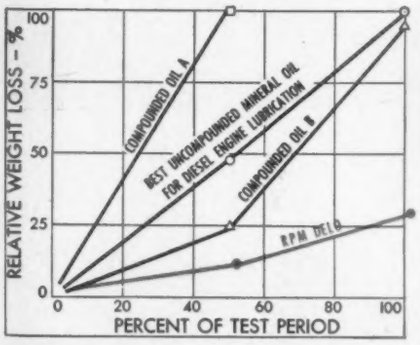
Designers of Cement Making Factories, Manufacturers of Machinery for Making Cement and Lime, etc.

60 EAST 42nd STREET NEW YORK, N. Y.

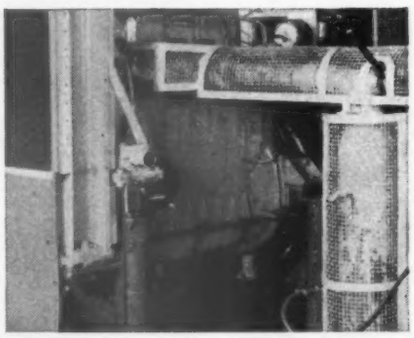
How RPM DELO Eliminates Diesel Bearing Corrosion



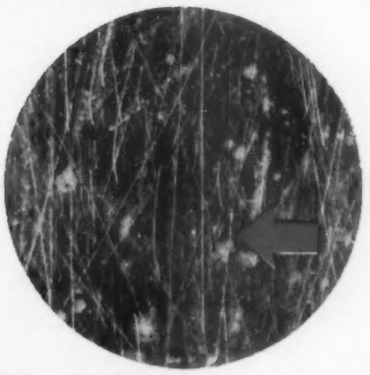
This is what happens to a copper-lead bearing when unstable lubricating oils that become corrosive, attack the lead. The picture on left shows a greatly enlarged cross-section of a new bearing, the copper in red, and lead in light grey. The picture on right shows the same type of bearing with the lead (light grey) eaten away from the surface by corrosion, leaving a copper honeycomb which disintegrates under pressure. RPM DELO Diesel Engine Lubricating Oil eliminates such corrosion of copper-lead or any kind of bearing.



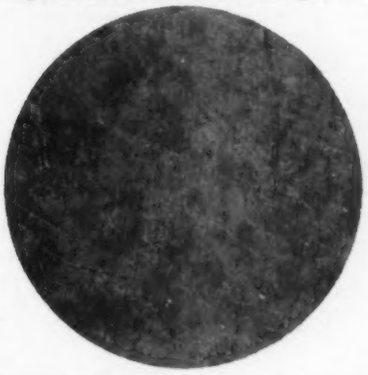
This chart shows what happens when copper-lead bearing strips are placed in oil which is subjected to oxidizing conditions at a temperature of 280° F. Note the extremely low weight loss with RPM DELO by comparison with other oils, compounded or uncompounded.



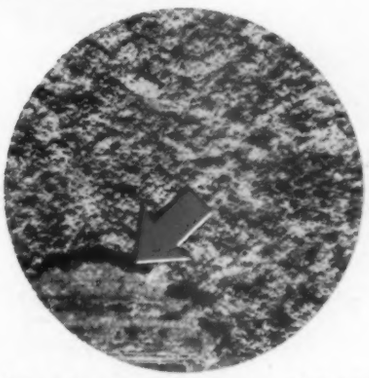
This photo shows equipment used in a 500-hour test on RPM DELO by Standard's research organization—RPM DELO has met every laboratory and field test. For specific technical information, write, asking for booklet T-2, Standard of California, San Francisco 20, Calif.



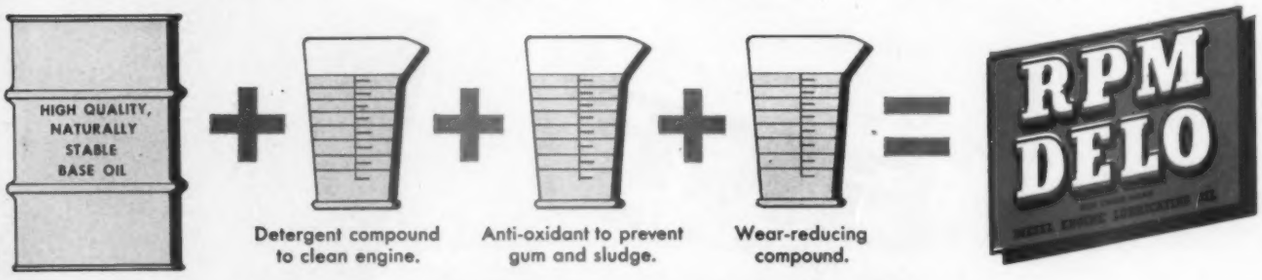
This is a greatly enlarged photograph of a cadmium-silver bearing when new. The arrow points to slight scratches from the broaching tool.



The same type of bearing is shown here, after use with RPM DELO. The bearing surface is in excellent condition.



This bearing was used with an unstable lubricating oil that became corrosive in service. Note that the entire surface is pocked and that actual breakdown is occurring on the surface. This can be eliminated by the use of RPM DELO.



Detergent compound to clean engine.

Anti-oxidant to prevent gum and sludge.

Wear-reducing compound.

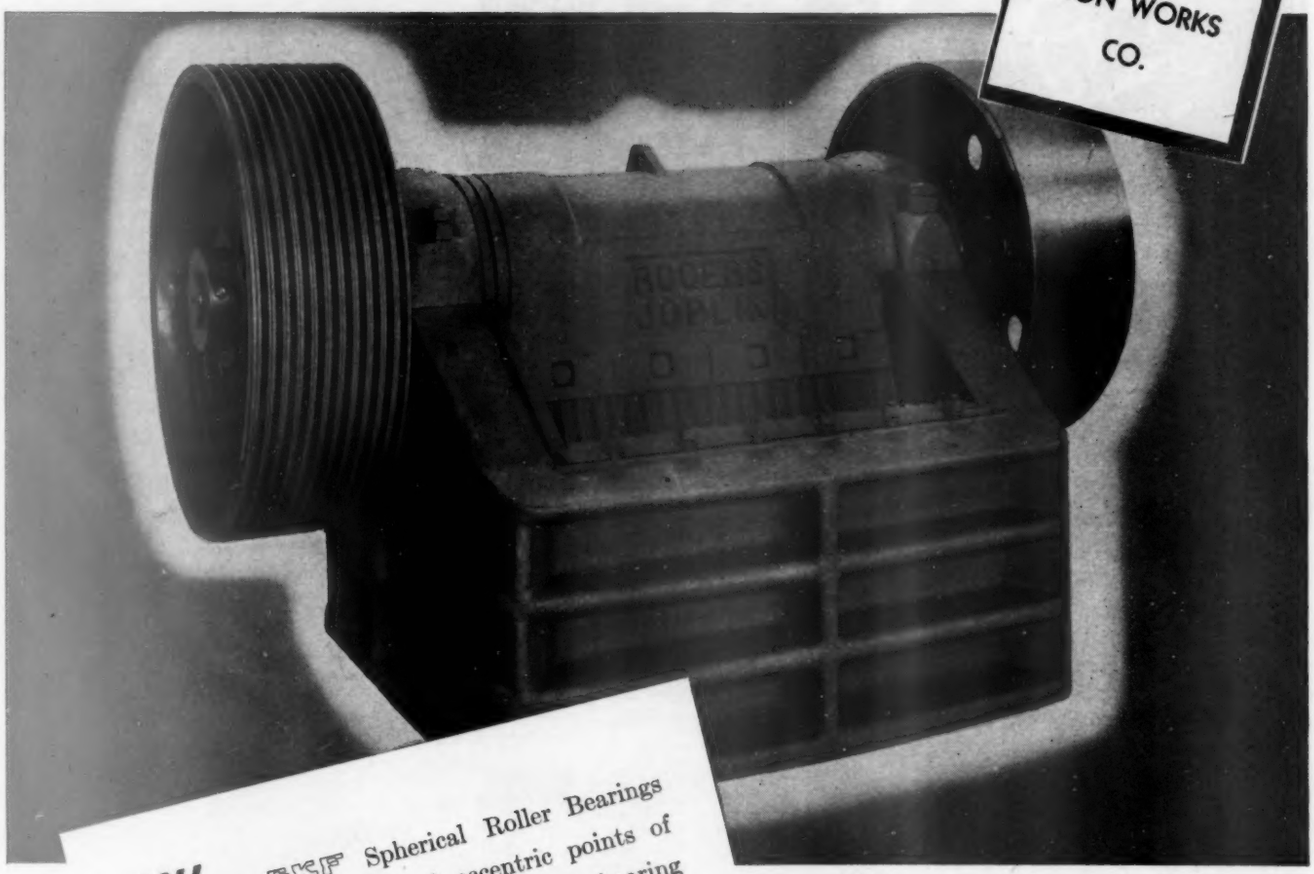
STANDARD OF CALIFORNIA

RPM DELO has world-wide distribution and is marketed under the following names: RPM DELO, Caltex RPM DELO, Kyso RPM DELO, Signal RPM DELO, Sohio RPM DELO, Imperial RPM DELO

CONCENTRATE

WHERE SKF BEARINGS TACKLE TOUGH JOBS

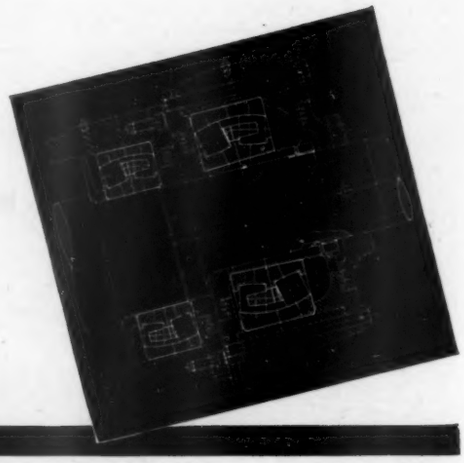
BUILT BY ROGERS IRON WORKS CO.

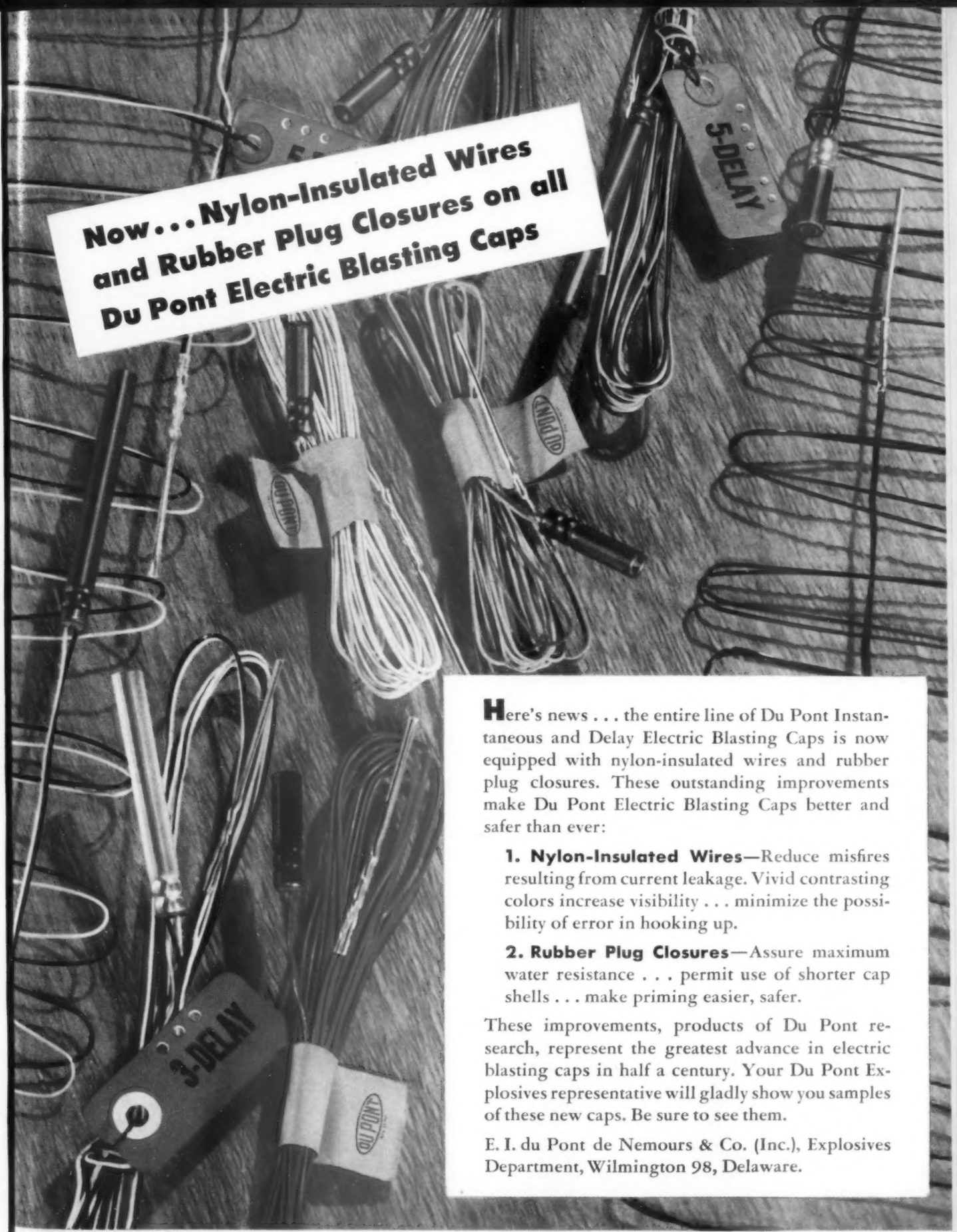


Where SKF Spherical Roller Bearings are located on side and eccentric points of this 10″ x 36″ Crusher is where high bearing capacity is always available for useful work. That's where bearing stamina is present *every* working second to take the punishment of terrific shocks and loads . . . where built-in alignment prevents binding from shaft deflections resulting from high stresses. It's where the right bearing is in the right place. 5756

SKF INDUSTRIES, INC., PHILA. 34, PA.

SKF
BALL AND ROLLER BEARINGS





Here's news . . . the entire line of Du Pont Instantaneous and Delay Electric Blasting Caps is now equipped with nylon-insulated wires and rubber plug closures. These outstanding improvements make Du Pont Electric Blasting Caps better and safer than ever:

1. Nylon-Insulated Wires—Reduce misfires resulting from current leakage. Vivid contrasting colors increase visibility . . . minimize the possibility of error in hooking up.

2. Rubber Plug Closures—Assure maximum water resistance . . . permit use of shorter cap shells . . . make priming easier, safer.

These improvements, products of Du Pont research, represent the greatest advance in electric blasting caps in half a century. Your Du Pont Explosives representative will gladly show you samples of these new caps. Be sure to see them.

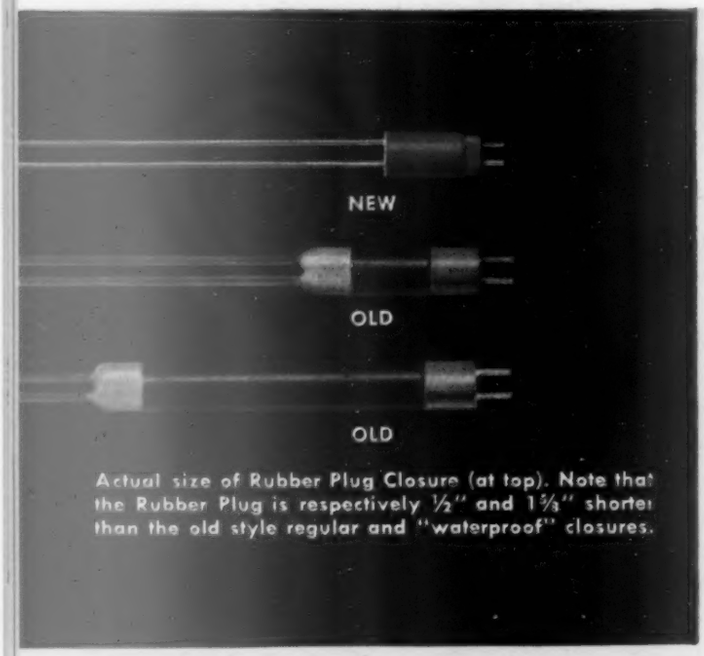
E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

DU PONT EXPLOSIVES

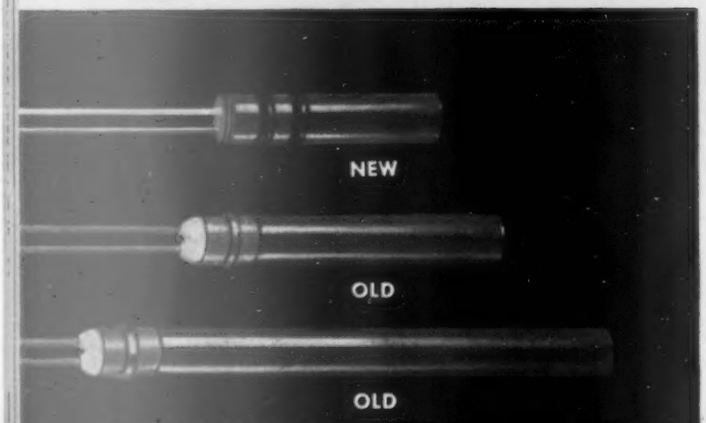
BLASTING SUPPLIES AND ACCESSORIES

DU PONT
REG. U.S. PAT. OFF.

These exclusive features . . .



Actual size of Rubber Plug Closure (at top). Note that the Rubber Plug is respectively ½" and 1⅝" shorter than the old style regular and "waterproof" closures.



Actual size of improved Instantaneous Electric Blasting Cap (at top) compared with old type regular and "waterproof" caps (center and bottom.) The new cap is shorter by ½" and 1⅝" respectively.

Actual size of an improved First Delay Electric Blasting Cap compared with its older counterpart. The new cap is 1 3/16" shorter than the old type. The same difference in length is maintained through all periods.

make Du Pont Electric Blasting Caps safer and better

● Today, when increased production is so vital to the war effort, two important improvements in Du Pont Electric Blasting Caps are helping industry do the job faster and safer. Here are the details:

Nylon-Insulated Wires—Nylon plastic wire covering is tough and abrasion-resistant . . . and it is not affected by extreme or rapid changes in temperature. It is equal to enamel insulation in preventing current leakage . . . yet, when necessary, it is readily removed for making connections. Nylon-insulated wires are clean to handle and resist kinking. Brilliant colors make them easy to see.

Rubber Plug Closures—These plugs, double crimped in the shells, replace the former combination of bridge plug, asphaltic waterproofing compound and sulfur seal. This allows a substantial reduction in shell length without any reduction in explosive strength. Shorter shells make priming easier and the loading of primers safer. Rubber plug caps have far greater water resistance than old style, asphalt-sealed "waterproof" caps . . . and their performance is not affected by extremes of temperature.

These exclusive features make Du Pont Electric Blasting Caps more dependable than ever. *And the most dependable detonators are the safest detonators.* So don't run the risk of misfires . . . use Du Pont Caps.

E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

• • •

Note: Nylon and rubber are allocated for the above described purposes by the War Production Board.

DU PONT EXPLOSIVES

BLASTING SUPPLIES AND ACCESSORIES

DU PONT
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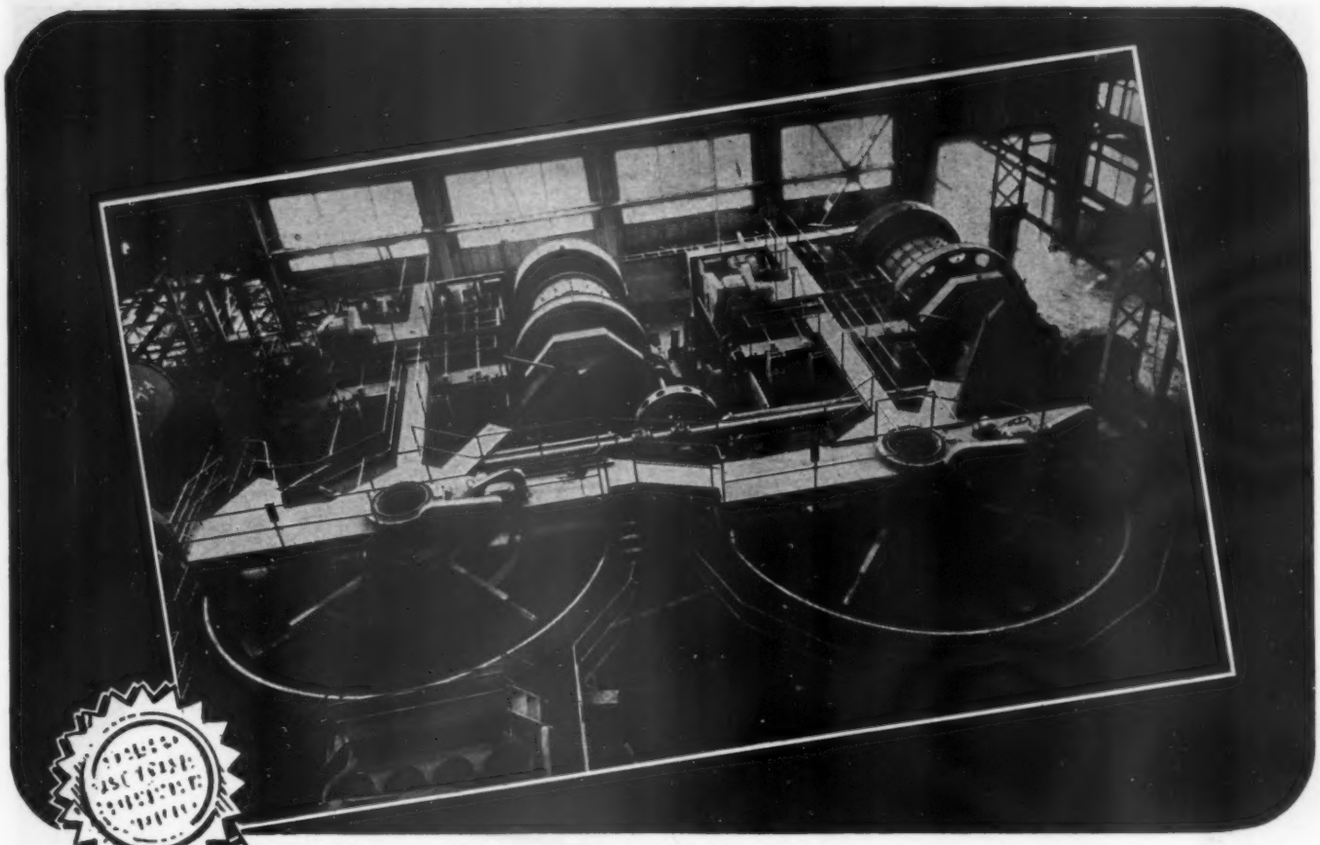

TOPS— IN UNIFORMLY FINE GRINDING

For new cement plants or for modernizing old mills, the DORR C.C.G. (Closed Circuit Grinding) System will produce a fine and uniformly ground product which produces a better quality cement. In many plants throughout the country DORR equipment has an outstanding record of producing exceptional results in wet process cement manufacture . . . with lower power consumption and other economies of operation.

DORR Equipment includes Classifiers employed for primary and secondary grind . . . DORR Thickeners for slurry and pulp thickening . . . and DORR Slurry Mixers for blending and storage. DORR Classifiers and Thickeners also are used for the separate sand-iron circuit. This equipment offers great flexibility . . . will enable a plant to deliver a diversity of products from a uniform raw material to meet modern demands of various construction work.

Whether planning a new mill or considering converting your present cement plant to more efficient, more economical operating methods, DORR Engineers will be glad to consult with you.

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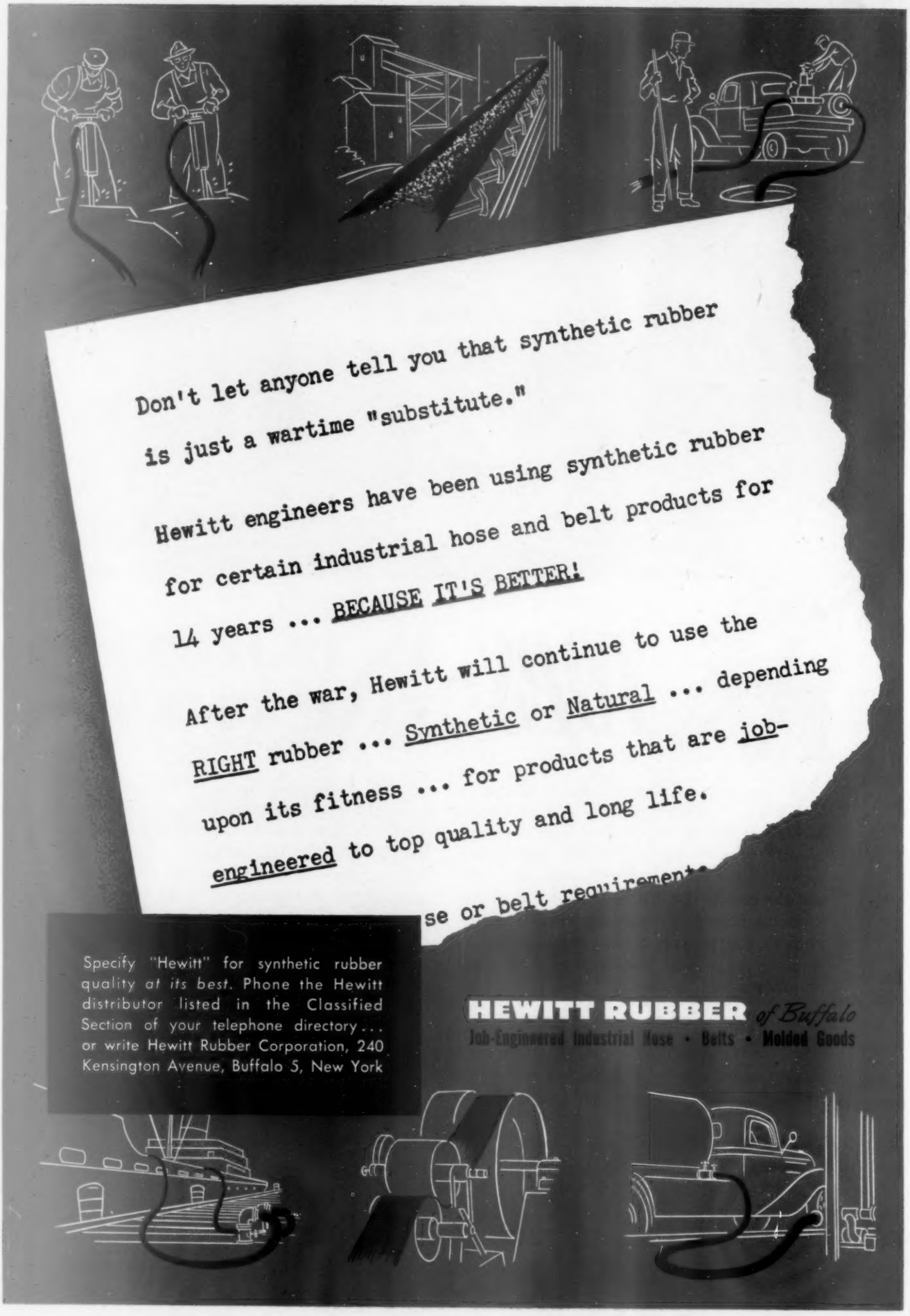
Don't let anyone tell you that synthetic rubber is just a wartime "substitute."
Hewitt engineers have been using synthetic rubber for certain industrial hose and belt products for 14 years ... BECAUSE IT'S BETTER!
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The Right Explosive Fits the Job Like a Key Fits a Lock

Choosing the right explosive is like picking out the right key to open a lock.

In a key, it's a matter of having the right combination of notches.

In an explosive, it's a matter of the right combination of properties. Strength, density, velocity, water resistance, consistency must all be properly balanced for best results.

In order to get just the right balance of properties, Atlas makes over 120 kinds and grades of explosives.

The Atlas representative has a specialized knowledge of these explosives and what they can do. You have a specialized knowledge of your ore and your operating methods.

Combine your knowledge of your job conditions with the Atlas representative's specialized knowledge of explosives to get out more ore at less cost.

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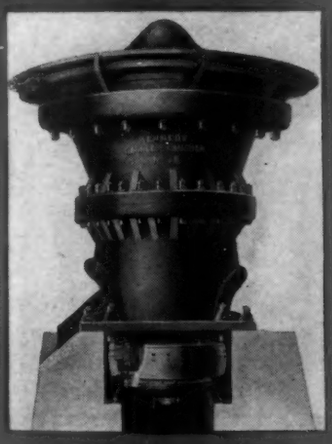
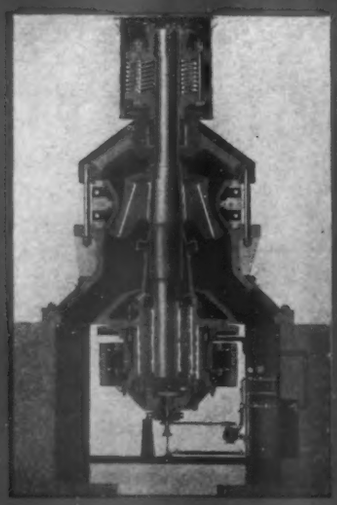
"YOU NEED IT"

A complete line of equipment for the Pit and Quarry Operator

KVS Crushers give more tonnage per horse power



KVS Gyratory Gearless Short Shaft Standard Crusher for primary reduction. Forced feed lubrication. Reversible top shell. Easy accessibility.



KVS Ball Bearing Gearless Crusher, low head type, for fine reduction. Synchronous motor built-in pulley applies all power direct to crushing.

Never before has the crushed stone producer faced such an urgent demand for his product—and with so little chance for correcting an error in machine selection.

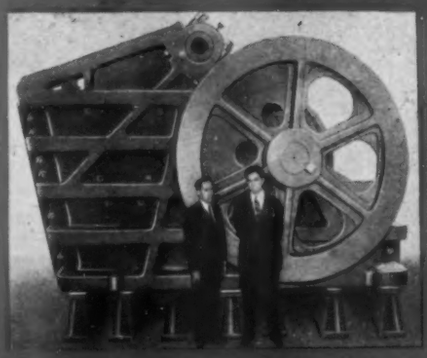
Experienced operators who "really can pick 'em" select KVS units for all 'round adaptability, serviceability and economy on crushing, washing, screening, or conveying jobs.

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

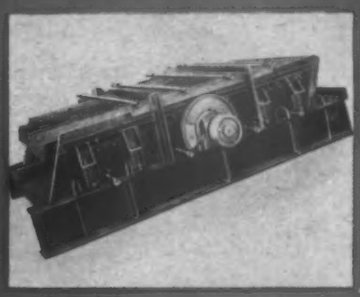
"WE'VE GOT IT"

KENNEDY-VAN SAUN

Representatives in all principal U. S. cities



KVS Swing Jaw Crusher is extra heavy duty type, for handling large tonnages of the toughest rocks. Available in sizes for all output or feed requirements.



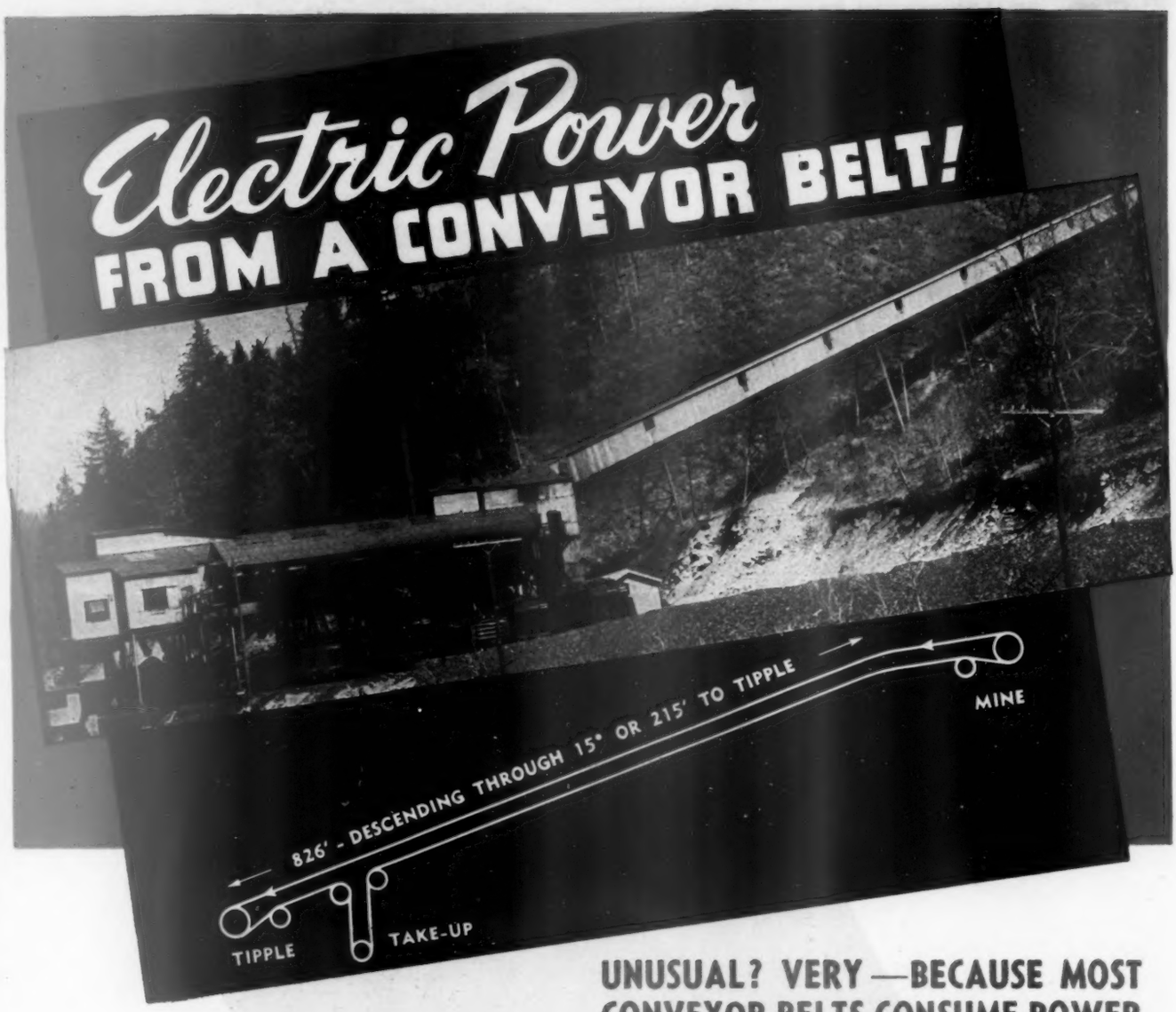
KVS Vibrating Screen features low installation and upkeep costs. Furnished in two types, and several sizes, with screening efficiency approximating 95%.

ARMY E NAVY

WRITE FOR CATALOG

2 PARK AVENUE • NEW YORK 16, N. Y. FACTORY: DANVILLE, PA.

Electric Power FROM A CONVEYOR BELT!



UNUSUAL? VERY—BECAUSE MOST CONVEYOR BELTS CONSUME POWER

At the Jewell Ridge Coal Company's mine at Tazewell, Va., coal is delivered to a conveyor belt which descends 215 feet, at a 15-degree slope, through a distance of 826 feet to the tipple below.

A regenerative motor starts the belt, but with full load and speed the motor automatically functions as a dynamo, generating a constant 30-kilowatt flow of electric power, and providing perfect speed control drag.

This was not only an unusual but a brilliantly successful integration of mine topography and sound engineering.

The belt is of Bull Dog quality, 48" wide, total overall length 1843 feet, and was vulcanized endless on the job by BWH engineers.

It is now over 7 years old and has stretched less than 3 feet though 10 times that amount was provided for. It looks as good as new and its eventual retirement is not foreseeable. Surely, this was straightforward belt building.

Whenever belts must possess the unusual in stamina, dependability and character, be sure to consult our nearest distributor and field technician, or write us direct.

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BIG BEND COLLIERIES, INC.

BIG BEND PRODUCTS COAL TERRA COTTA CLAY

MINE PHONE CENTER POINT 27

BRAZIL, INDIANA

September 6, 1944

Honan-Crane Corporation,
Lebanon, Indiana.

Gentlemen:

We are operating three Bucyrus Monighan Draglines for removing the overburden from the coal and all three machines are equipped with Honan-Crane Purifiers.

One of the draglines is the 9W type equipped with a 600 horse-power Fairbanks-Morse diesel and having experienced excessive trouble in cleaning the lubricating oil, we were induced to install one of your purifiers. Our experience with the Honan-Crane purifier on the lubricating oil was so very good that we installed the purifiers on the fuel oil lines and the hydraulic brake lines as well. The savings we have had from the elimination of changing the oil has many times paid for the installation of the Honan-Crane purifier and we are happy to say that we have never had an engine failure since their installation.

Our other 9W dragline is electrically driven but since it is equipped with hydraulic brakes, we installed your purifier on this equipment also. Our third dragline is one of the smaller 3W types that is equipped with a 300 Horse-power diesel and of course it is fully equipped with your purifiers.

Our purpose in writing this letter is to say that we appreciate the serve you have given us and since we have used your equipment for over a year, we thought you might like to know how very well satisfied we are with the Honan-Crane oil purifiers.

Very truly yours,

Frampton Peckham

President.

FR/J

ON THE JOB

Honan-Crane Oil Purifiers Get Results!

Honan-Crane "Continuous" Oil Purifiers are available for the purification of Hydraulic Oils, Diesel Lube and Fuel Oils, and many other kinds of industrial oils.

Write us today for prices and complete information.

HONAN-CRANE CORP.

Subsidiary of Houdaille-Hershey Corp.

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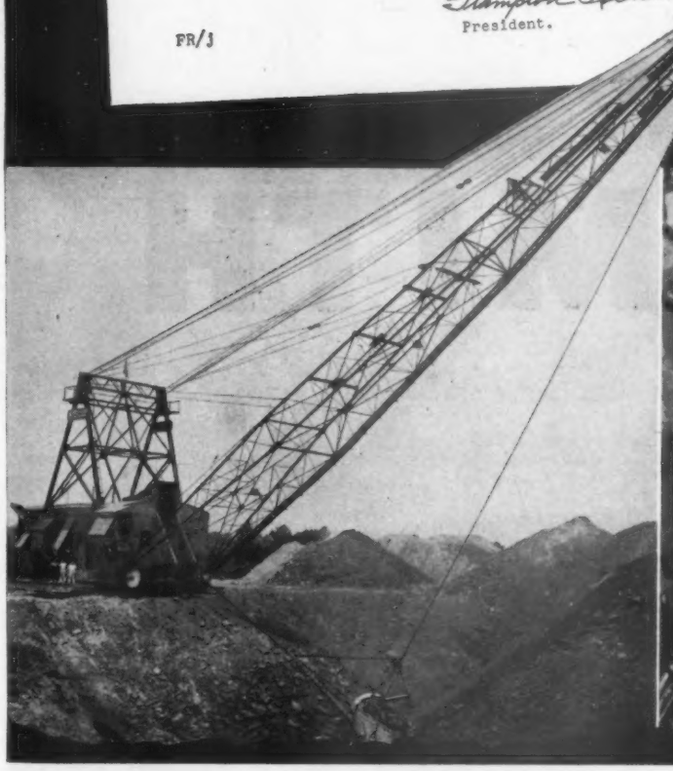
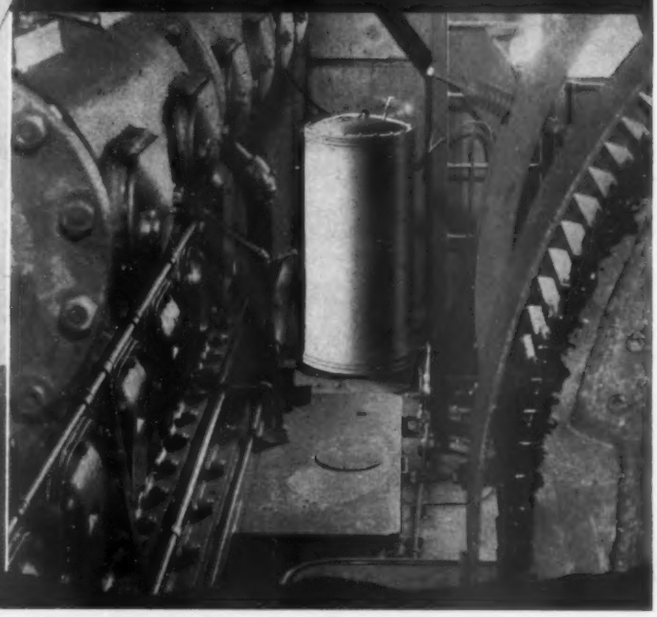


9-W Dragline, equipped with a 600-HP Fairbanks-Morse Diesel. Honan-Crane Purifiers on fuel. Lube and hydraulic oil in brake lines.



Interior view of 9-W diesel powered dragline, equipped with Honan-Crane Purifier on hydraulic oil in brake lines.

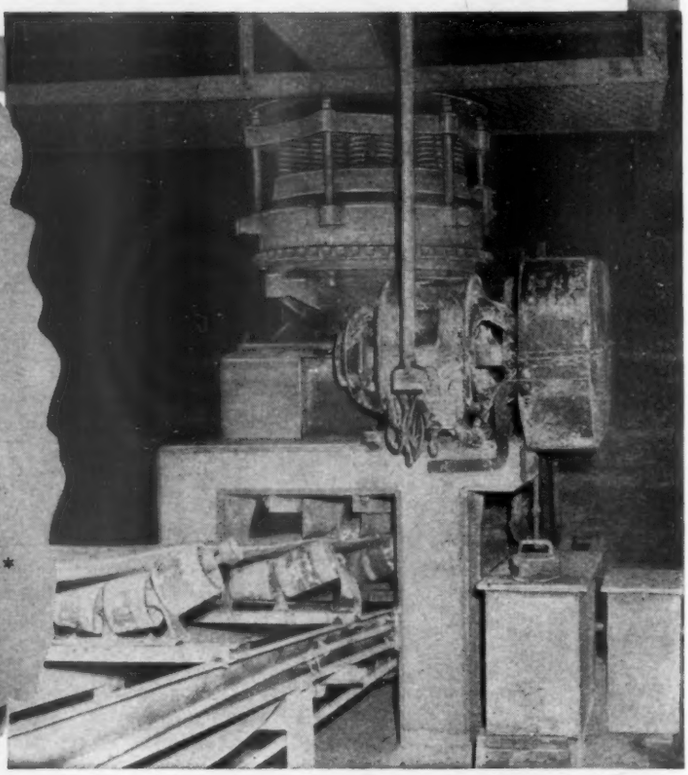
How to Crush

330,000 TONS OF CLINKER AT NO COST FOR REPLACEMENTS

"We have put approximately 330,000 tons of clinker through the Telsmith Gyrasphere since installation of the crusher in March 1940. Operation has been entirely satisfactory and we have not found it necessary to replace any part of the Gyrasphere."

[redacted] PORTLAND CEMENT COMPANY *

*NAME ON REQUEST



TELSMITH

Gyrasphere SECONDARY CRUSHER

Crushing Portland cement clinker...to a minus 3/8" or minus 1/4" product...330,000 tons of it...over four years of steady crushing..but not one cent for repair expense, except for replaceable oil filters! The crusher is a Telsmith Gyrasphere Secondary Crusher. And its owner is a mid-western Portland cement company (name given on request).

In their system of handling, clinker goes from storage to the Gyrasphere crusher...and then direct to the clinker mills. Owing to limited storage space, clinker is fed to the crusher very hot...over 300 degrees! The crusher gets hot, too—its lubricating oil is water-cooled. In the Telsmith Gyrasphere *double protectors*... four flexible labyrinth seals plus two piston rings...cut oil and maintenance costs to a new low.

Find out *how* you can get finer crushing, continuous operation, greater capacity...with less trouble, less power, less upkeep. Get Bulletin Y-15. Y-6

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Brandeis M. & S. Co., Louisville 8, Ky.
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Rish Equipment Co., Roanoke 7 & Richmond, Va.
North Carolina Eqpt. Co., Raleigh & Charlotte, N.C.
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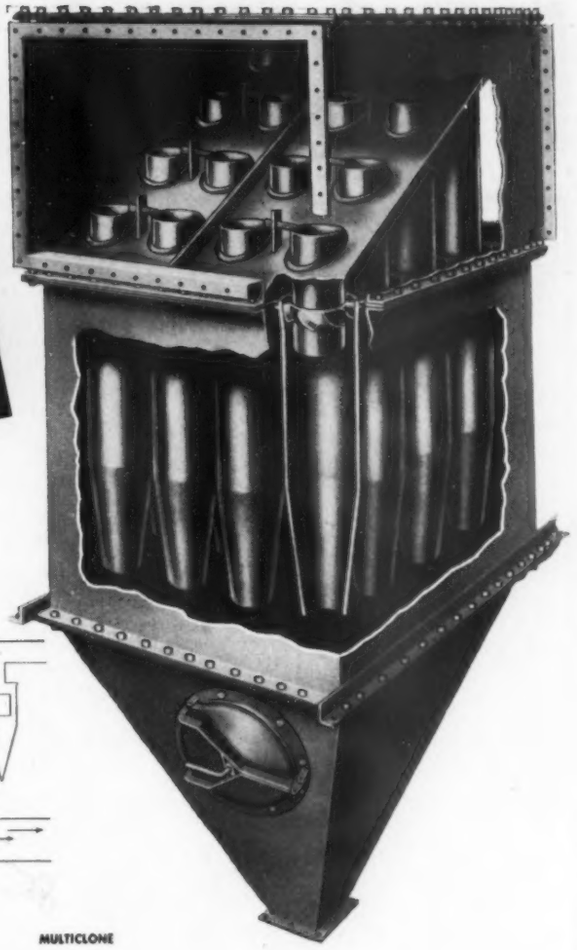
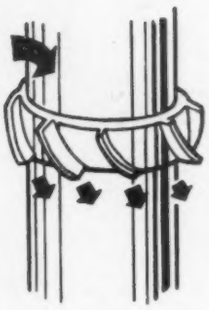
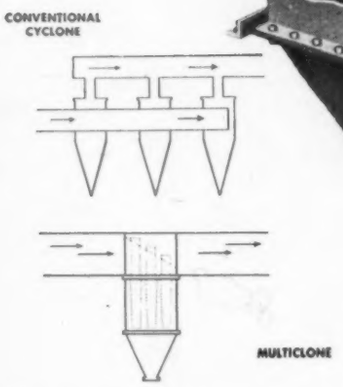
You can have ALL these important advantages by installing a MULTICLONE for Dust Recovery



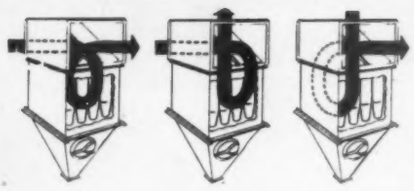


Efficiency! The unique and patented *vane* which distributes the gases in the MULTICLONE collector tube makes possible the compact nesting of multiple *small* diameter tubes. Smaller radius of small tubes increases centrifugal forces, throwing out greater proportion of particles 10 microns and less as well as the larger particles. Result—high total recovery!



Compactness! No other unit of comparable performance is as compact as the MULTICLONE, either in square footage or cubic footage. Thus, you can often fit the MULTICLONE into small areas and waste spaces, effecting important savings whether the installation is in new structures or existing plants.

When purchasing recovery equipment it's a good idea to consider *all* factors when making your selection. But whether you base your decision on a combination of requirements—*or on any one factor alone*—you'll still find in the MULTICLONE the combination or individual factor you require for your plant.



Adaptability! Here's an important factor to keep in mind—adaptability of MULTICLONE to installation requirements. In the MULTICLONE you can have either side-inlet side-outlet, side-inlet top-outlet or even top-inlet side-outlet duct connections... whichever best meets *your* space restrictions.

Easy Maintenance! The MULTICLONE has no filters or screens to clean or replace, no high speed moving parts to maintain and requires no supervision. In addition, single hopper for entire bank of tubes simplifies collection. Complete unit is readily accessible for inspection or servicing. These are some of the features that keep MULTICLONE operation and maintenance at a minimum throughout years of heavy duty high recovery service!

Before selecting *any* recovery equipment send for this free booklet which gives the complete story on MULTICLONE advantages in fly ash elimination...

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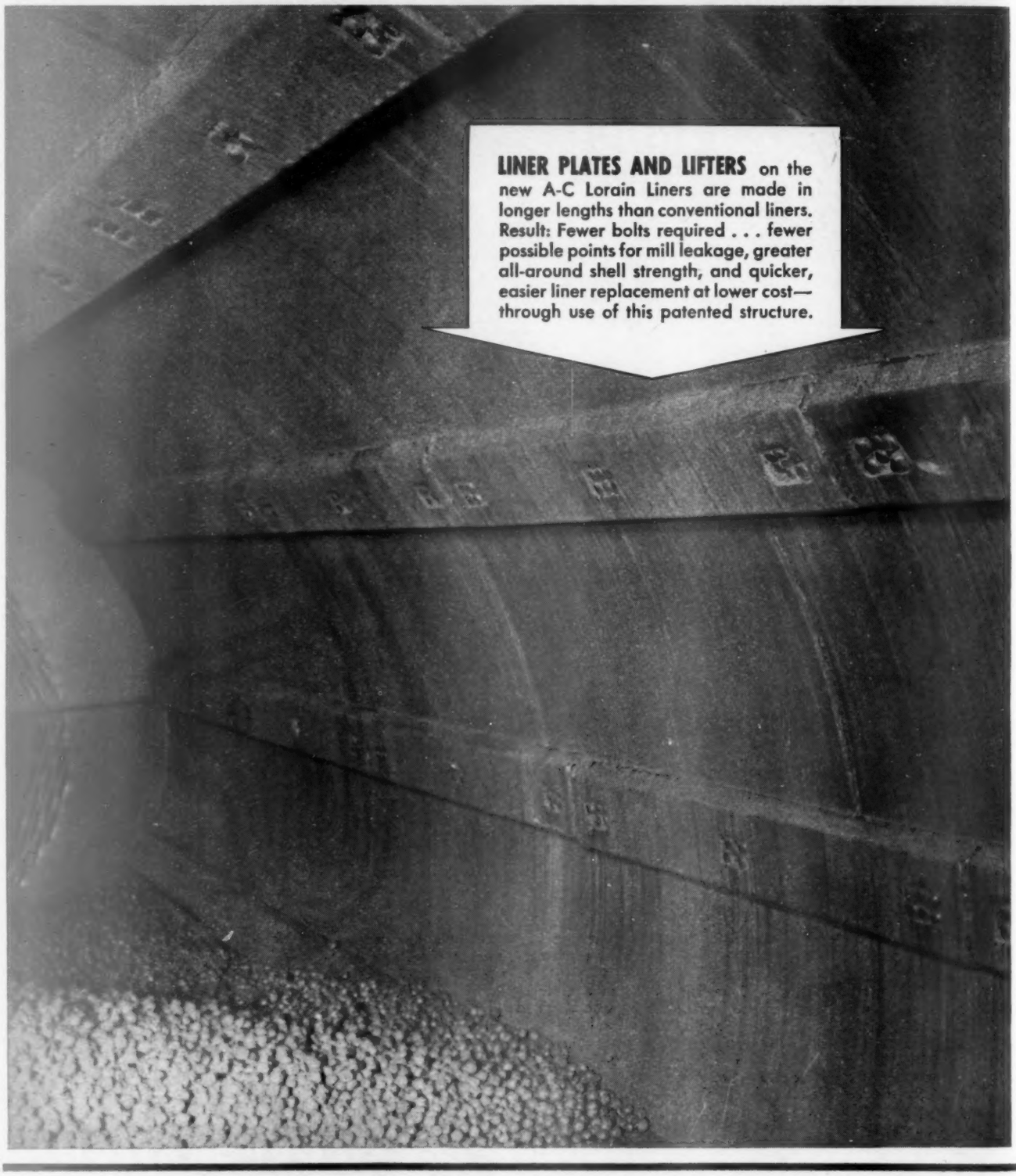
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

PRODUCT OF THE MONTH


LINER PLATES AND LIFTERS on the new A-C Lorain Liners are made in longer lengths than conventional liners. Result: Fewer bolts required . . . fewer possible points for mill leakage, greater all-around shell strength, and quicker, easier liner replacement at lower cost—through use of this patented structure.

ALLIS CHALMERS

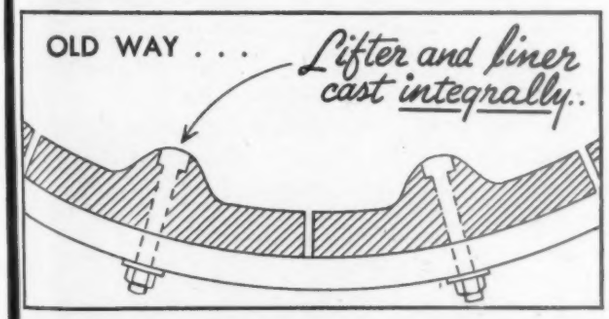
...A-C Lorain Liners

MILWAUKEE, WIS. — Allis-Chalmers announces the new A-C Lorain Liner, adaptable to *all* makes and diameters of new or old style cylindrical grinding mills.

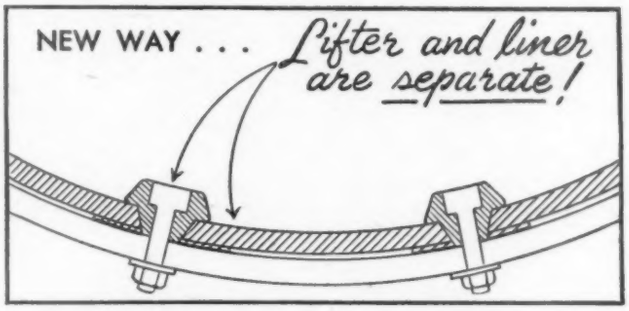
In contrast to conventional one-piece cast liners, new A-C Lorain Liners consist of *two* principal units: 1) high carbon rolled steel liner plates; 2) separate rolled alloy steel lifters. This construction enables lower initial and replacement cost of liners — reduces the grinding cost per ton of material handled.

An increase in lining diameter, resulting in greater mill capacity, is made possible by the use of thinner liner plates than those on conventional cast steel liners.

A-C Lorain Liners are now available in a complete range of liner plate thicknesses and lifter heights to fit any mill or application. Write today for Bulletin B6355.



CONVENTIONAL LINERS, of rib, wave, shiplap or wear type, are generally constructed of cast iron or cast alloy steel—*lifters cast integral with plates.* Two main disadvantages of this construction are: 1) Being cast, conventional liners are often thicker and heavier than required for many applications; 2) When lifters wear down or off, a *sliding* instead of *cascading* action of the grinding media results — reducing both grinding efficiency and capacity of the mill.



LINER PLATES on the A-C Lorain Liner are held in place by self-wedging lifters that bolt to shell. Lifters and liners are both reversible and renewable. For example, when one side of lifter is worn down, it may be reversed and other side used . . . *giving double the lifter life.* When both sides wear down, *only the lifter* need be renewed—thus eliminating unnecessary scrapping of body section of liner! It all adds up to greatly reduced liner cost . . . easy, quick maintenance . . . less down-time!

A 1815

MILWAUKEE, WIS.

Tune in the Boston Symphony, Blue Network, Saturday at 8:30 pm, EWT.

Less grief when you pay for it, too!

How much do you know about Taylor Spiral Pipe? You are well acquainted, no doubt, with its familiar uses for exhaust piping, long water lines, spray pond piping and the like. But these are simply the applications for which no other type of pipe can seriously compete.

For the very reason that Taylor Spiral Pipe does win "hands down" on these special services, too many operating men consider it *only* for these applications. That is why we ask how well acquainted you are—how really well acquainted you are—with Taylor Spiral Pipe.

If you know all about it, you know that its use does not stop with special applications. You know its spiral construction gives this light-but-strong pipe the ability to handle many other types of services—the broadest band of moderate and low pressure services—applications that are traditionally assigned to far heavier Standard Thickness pipe as a matter of course.

If you are well acquainted with it you also know that its lighter weight can cut the installed cost of every-day piping way down—in some cases to half that of the heavy pipe it so well replaces.

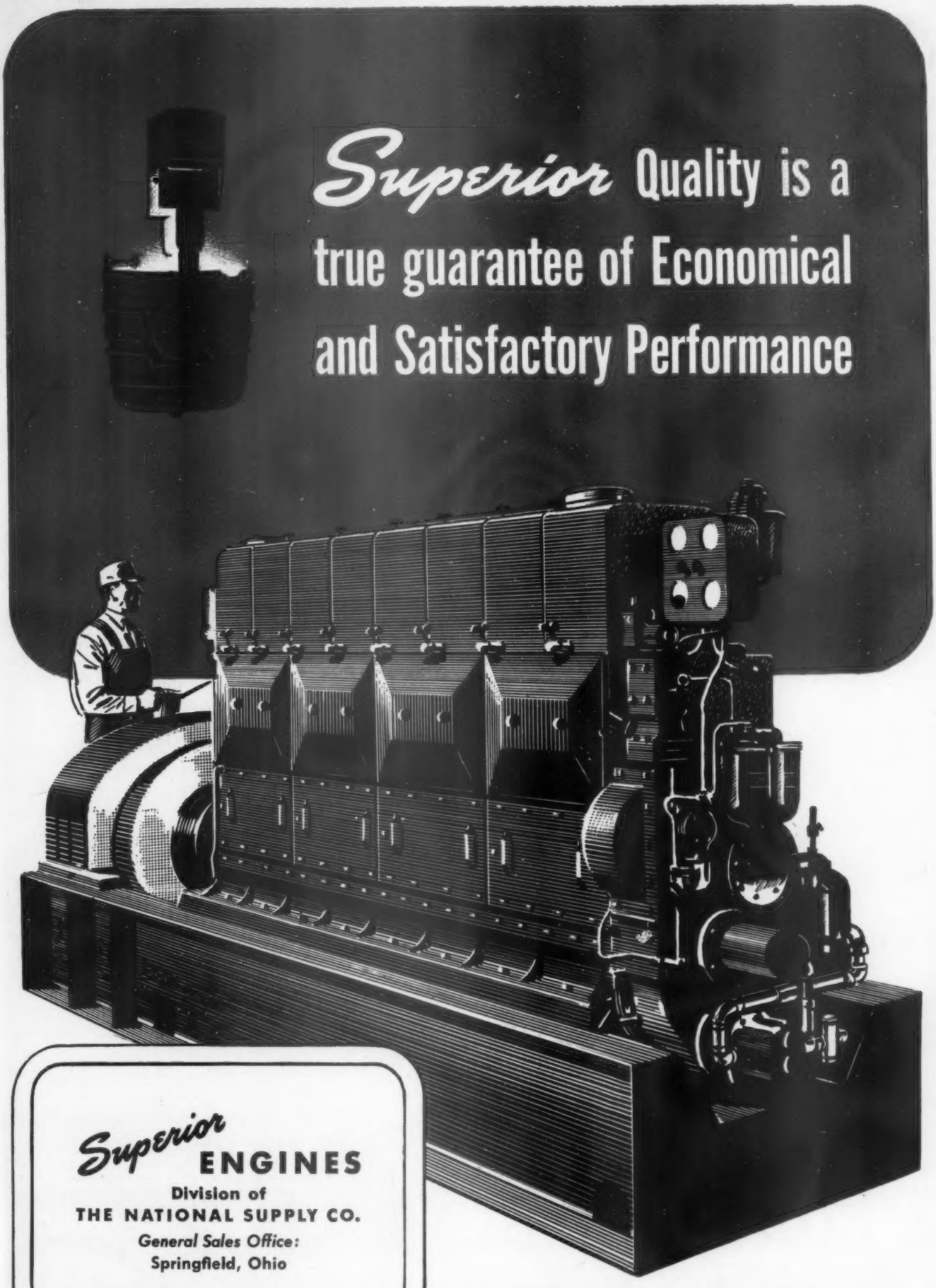
Yes, it will pay you to take Taylor Spiral Pipe into your calculations for all low and moderate pressure piping needs. Changing to Taylor Spiral is made easy by the complete range of sizes, wall thicknesses and fittings. Thicknesses range from 12 to 6 gauge; sizes from 4″ to 42″; joint lengths up to 40 ft. All types of end joints and couplings, all kinds of fittings and specials or fabricated assemblies, are produced by Taylor Forge providing a complete service with undivided responsibility.

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago, P. O. Box 485 ★ New York Office: 50 Church St. ★ Philadelphia Office: Broad Street Station Bldg.

CHANGE TO TAYLOR SPIRAL PIPE FOR:

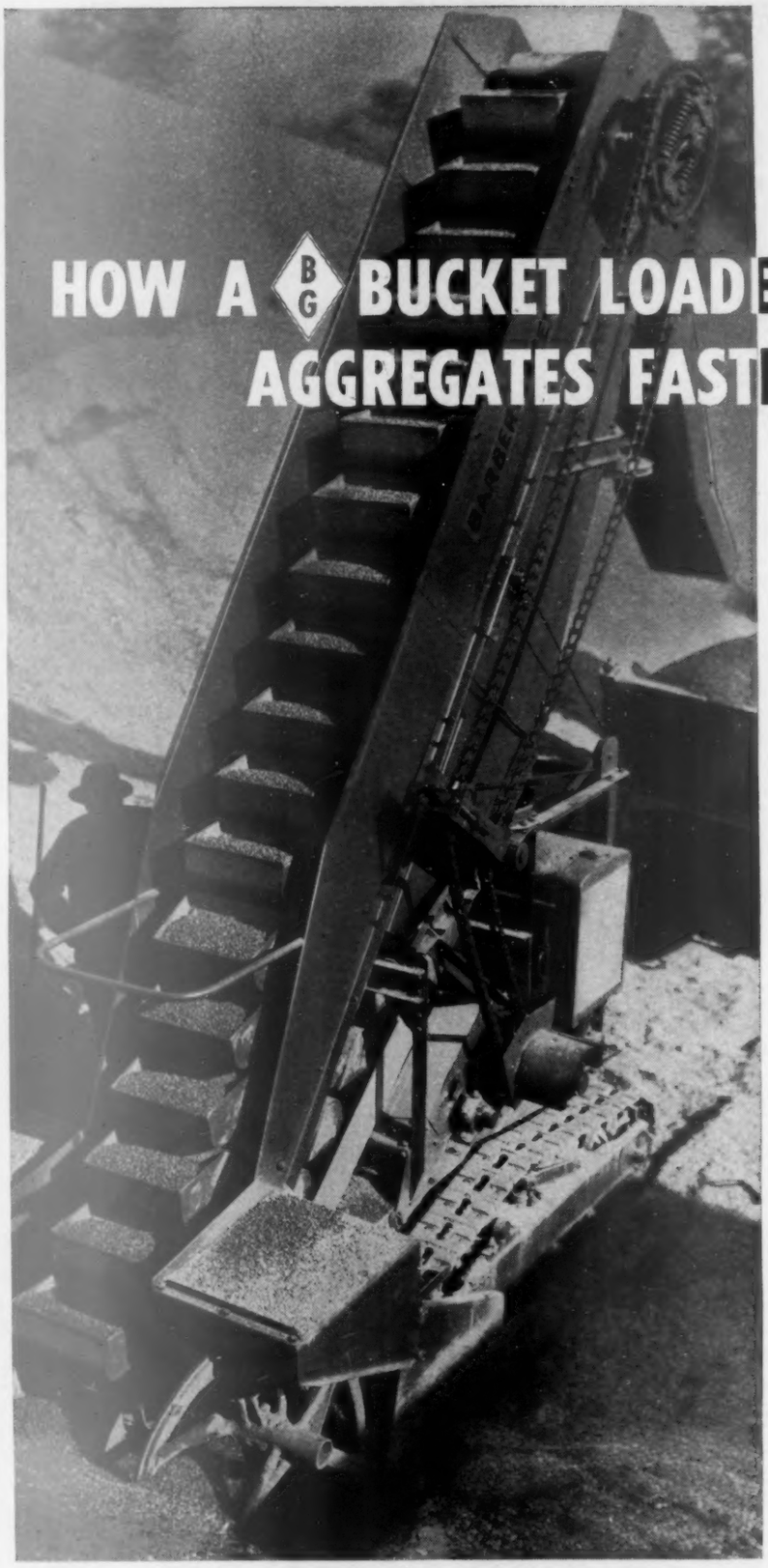
- High and Low Pressure Water Lines
- Low Pressure Steam and Air Lines
- Steam and Diesel Exhaust Lines
- Vacuum and Suction Lines
- Blower Piping
- Sand and Gravel Lines
- Industrial Gas Lines
- Oil and Gas Gathering Lines
- Swing Pipe
- Spray Pond Piping
- Hydraulic Mining
- Dredge Lines



Superior Quality is a true guarantee of Economical and Satisfactory Performance

Superior ENGINES
Division of
THE NATIONAL SUPPLY CO.
General Sales Office:
Springfield, Ohio

SUPERIOR DIESELS • STATIONARY, 28 to 1325 H. P.
MARINE, 28 to 1325 H. P. • GENERATOR SETS, 20 to 928 kw.



HOW A B-G BUCKET LOADER HELPS HANDLE AGGREGATES FASTER AND CHEAPER

THIS versatile Barber-Greene Bucket Loader is a valuable job-coordinating unit in pit and quarry.

You can save money by processing aggregate at a uniform rate, even during "off" seasons, and storing it in stockpiles.

A Barber-Greene will reload it into trucks, whenever needed, at exceptionally low cost. In fact, many operators have found that the saving in truck time alone justifies its purchase.

Continuous handling by the B-G Loader is extremely advantageous in feeding material to processing equipment — screens, crushers, belt conveyors.

The B-G Bucket Loader also can be used for stripping, light excavating, screening, and many other cost-saving applications.

Full crawler mounting, tank type chassis, automatic overload release, synchronized spiral feeding, floating boom, centralized control, and 12 crowding speeds are but a few of the advanced mechanical features that give the B-G Loader long life and fine performance under the rigors of heavy, steady work. Consult your B-G representative or write the Barber-Greene Company, Aurora, Illinois.

44-28

Barber-Greene B-G *Constant Flow Equipment*

Save Hauling Costs

LOAD YOUR ROCK IN TOURNATRAILERS

On this Missouri operation four big 17-yard Tournatrailers hauled blasted rock at 14.9 m.p.h. from hundred-foot bank.

2½-yard shovel piled heaped loads into each Tournatrailer with seven passes, average loading time . . . 2½ minutes.

Controlled rear dump unloaded material clear of tires.

To first strip overburden, this smart operator used LeTourneau Carryall Scrapers . . . then switched Tournapull prime movers to Tournatrailers for shovel loading.

BECAUSE of its simplicity and advanced design, the rugged, rear-dump Tournatrailer cuts your equipment investment and your operating cost.

Job-proved prime mover: The Tournatrailer is powered by the job-proved 150 h.p. Tournapull (over 2750 built and shipped), which pulls and steers with two front drive wheels.

Speeds fit quarry operation: 4 speeds forward plus reverse; top 14.9 m.p.h., ample for quarry hauling. Plenty power all through range to get into high gear quickly and climb pit grades easily.

Ample traction: Full weight of prime mover, plus 25% of trailer and its load, on driving wheels gives a firm, sure grip for quick starts and fast hauling. Big 5'6" diameter tires (21.00 x 24) on both pulling and trailing unit give large-area ground contact for flotation and easy rolling over bumps and rocks, rugged strength to stand hauling over quarry floors. No overloading of tires on uneven ground or wedged-rock damage as with dual tires.

Long wheel base: Tournatrailer has a wheel base of 18'7", which, plus big low-pressure tires, provides easy riding for both operator and machinery. Load rides between tires; no spring maintenance. Air hydraulic brakes on trailer wheels give safe control. Steering with power wheels improves maneuverability.

Save spotting and loading time: One spot takes 17-heaped yards (or approx. 20 ton gross load) away from shovel. Body has top opening of 8' x 12'8", with overall height of only 8', giving shovel operator a roomy target so he can swing and dump faster. Ample clearance, body to cab, helps fast, safe loading.

Clean, positive-control rear dump: Cable-controlled trailer body slides back, cleans load off the trailer bed, out the rear, clear of tires. By opening slowly, rock can be released a little at a time. Simple dump method eliminates expensive truck hoist machinery; reduces maintenance, keeps center of gravity always low.

Tournatrailer interchangeable with Carryall Scraper: For stripping, you can switch from trailer to a 15-yard Carryall Scraper on the same Tournapull prime mover. This Tournapull rig cuts stripping costs by self-load, self-spread, plus high-speed hauling.

It will pay you to check low-cost Tournatrailer hauling for your quarry and pit operation. For more information, see your LeTourneau distributor TODAY.

LETOURNEAU PEORIA, ILLINOIS • STOCKTON, CALIFORNIA

TOURNATRAILERS

Manufacturers of TOURNAPULLS*, ANGLEDOZERS*, BULLDOZERS, TILTDOZERS*, CARRYALL* SCRAPERS, POWER CONTROL UNITS, ROOTERS*, TOURNATRAILERS*, TOURNACRANES*, TOURNATRUCKS*, SHEEP'S FOOT ROLLERS; TOURNAROPE*, TOURNAWELD*, TOURNALIFTS*

Trade Mark Reg. U. S. Pat. Off. PQ1

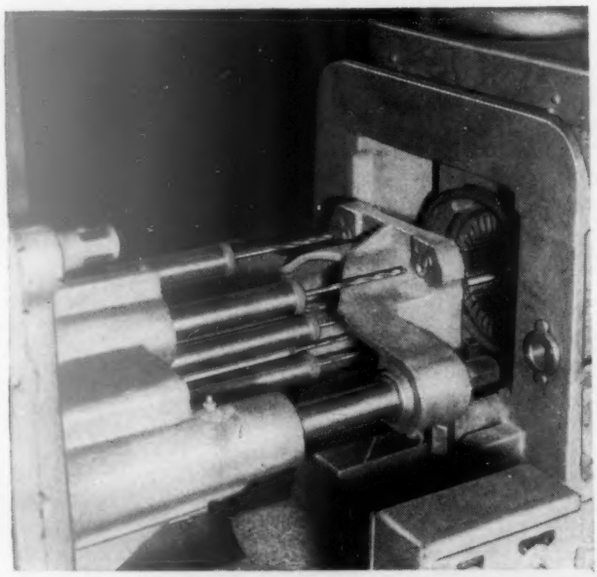
RUBBER-TIRED POWER FOR FASTER HAULING

BLESSED BOLT HOLES

It's a blessing to electricians and maintenance men when bolt holes in motor end shields and frames are exactly in line, and mounting holes in the feet are uniformly and accurately positioned. Installation is easier. Interchanging of motors, rotating of end shields, and reversal of stators are all more quickly accomplished. Tight fits are obtained without forcing. Bearing alignment is insured, internal strains are avoided. During the war period, jig-fixture uniformity maintained in machining, drilling, and tapping Tri-Clad motor frames has saved thousands of man-hours of installation and servicing.

End shields are easily rotated for inverted motor mounting.

JIGS AND FIXTURES OF ADVANCED DESIGN MEAN CLOSE FITS IN TRI-CLAD MOTORS



Specially built production equipment, as well as test apparatus, helps build Tri-Clad motors with close fits and clearances. Here, all bolt holes in the frame are drilled in a single operation within a rigid fixture that insures accurate positioning. In the finished motor, this results in more accurate shaft alignment, smoother operation, longer bearing life. General Electric's high-volume motor production permits tooling up for high precision without increasing the cost to you. *General Electric Co., Schenectady 5, N.Y.*

Frame-drilling operation at G.E.'s Lynn (Mass.) Works.

GENERAL ELECTRIC

750-249-5960

Buy all the BONDS you can—*and keep all you buy.*

On A Public Highway . . .

. . . Or A Private Haul Road

IT'S ALL THE SAME TO MISSISSIPPI WAGONS

MISSISSIPPI WAGONS are the only bottom dump hauling units powered by a heavy industrial tractor that can haul payloads of more than 26,000 pounds over most state and federal highways without exceeding the laws on axle loadings and maximum widths.

This is made possible by the weight transferring feature which is exclusive on MISSISSIPPI WAGONS and provides a four-axle unit, instead of a three-axle semitrailer.

A single investment in MISSISSIPPI WAGONS provides the contractor with both his construction and long haul equipment.

Here are some of the contractors in the State of Louisiana who are now using MISSISSIPPI WAGONS for long haul work over state highways:

C. B. Stuart Company, Baton Rouge, Six Units.

Dixie Dirt Company, Baton Rouge, Six Units.

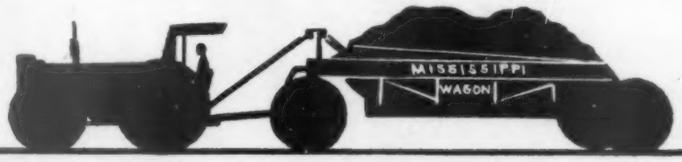
Morris and Young, Baton Rouge, Four Units.

W. R. Aldrich Company, Baton Rouge, Three Units.

T. L. James Company, Ruston, Two Units.

When construction jobs are awarded in the postwar period, these and other owners of MISSISSIPPI WAGONS will have the "World's Most Modern Hauling Units" available to meet competitive bids—and still make profits. Because their single investment in MISSISSIPPI WAGONS provides them with all round hauling units suitable for varied types of jobs. Write us, or contact your nearest International Industrial Power Distributor, for full information on MISSISSIPPI WAGONS.

"THE WORLD'S MOST MODERN HAULING UNIT"



MRS MANUFACTURING CO.

JACKSON, MISSISSIPPI

Happy Warrior

The Buckeye Clipper *enjoys* its war-time role of helping the Allies on all war fronts, judging by the endless gruelling jobs it does *without complaint*, according to eyewitness accounts. A T/4 in the Army Engineers hit the nail on the head when he called the Clipper "A Happy Warrior."

Every Clipper is equipped with *Mevac* Vacuum Power Control which speeds up and smooths out crowd, hoist, swing and travel, is easier on the transmissions and engine and greatly reduces operator fatigue. Proved in war, you'll profit with Clippers in the post-war era. Send for 24-page book — "The Age of Clippers."

Quickly Convertible to Shovel, Trench Hoe, Dragline

ARMY NAVY

Built by Buckeye

Buckeye Traction Ditcher Co., Findlay, Ohio

Convertible Shovels

Trenchers

Tractor Equipment

Road Wideners

R-B Finegraders

Spreaders

"Absolutely Tops!"

SAYS OWNER McCABE

AND that's not all enthusiastic Lloyd McCabe said when asked what he thinks of the two "Caterpillar" Diesel D13000 Engines which run his limestone crusher and pulverizer located two miles from Pella, Iowa. Speaking of the older of the two, which in 3½ years has turned in 5692 hours under steady load, he expressed himself in this crisp fashion:

"Have worked with contractors for 17 years and know all makes. You couldn't put anything else in this plant for me. Job is very dusty, but the oil filters and air cleaners are perfect. Good starting in cold weather. One morning at 30 degrees she started the second time over. Easy machine to put a green man on. Easy to take care of."

Mr. McCabe also has a "Caterpillar" Diesel D7 Tractor with bulldozer and scraper; and a D4 that's Traxcavator-equipped. He's lucky—having all that "Caterpillar" Diesel equipment to keep him going during a period when new machines have been hard to get because of the war.

These rugged, dependable, economical and long-lived engines are especially armed to fight the "Battle of Grit and Dirt" that rages around a crushing plant. Through the features listed at the right, "Caterpillar" Diesels are *SEALED AT EVERY POINT* at which harmful substances might enter.

It will be good news to all of us when there will again be plenty of brand-new "Caterpillar" Diesels available. If you need one, your "Caterpillar" dealer will do everything he can to help you. See him soon.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

- **Large three-stage oil-bath air cleaner.**
- **Super-efficient absorbent type fuel filters.**
- **Combination absorbent and metal type oil filters.**
- **Completely enclosed valve-operating mechanism.**
- **Covers, oil pan, housings, etc. — all oil and dust tight.**

CATERPILLAR DIESEL

REG. U.S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

The Beginning of the End . . . Hitler's generals knew they were licked when Allied fighting men and equipment really got rolling. One reason the blitzkrieg idea blew up in their faces is the miracle of Allied supply lines—aided by an armada of the mightiest cargo-carrying trucks any army ever had. Hundreds of these huge 10-ton, 6 x 4 Macks helped chase Rommel out of Africa. Many more hundreds of them rolled into France on the heels of D-Day fighting men. When you think of Mack's record these past 44 years, perhaps it's not surprising that big *Macks* were the trucks for this big job. And it's not at all surprising that they did the job so well. Anywhere and any time—Macks really get things done.

Performance Counts!

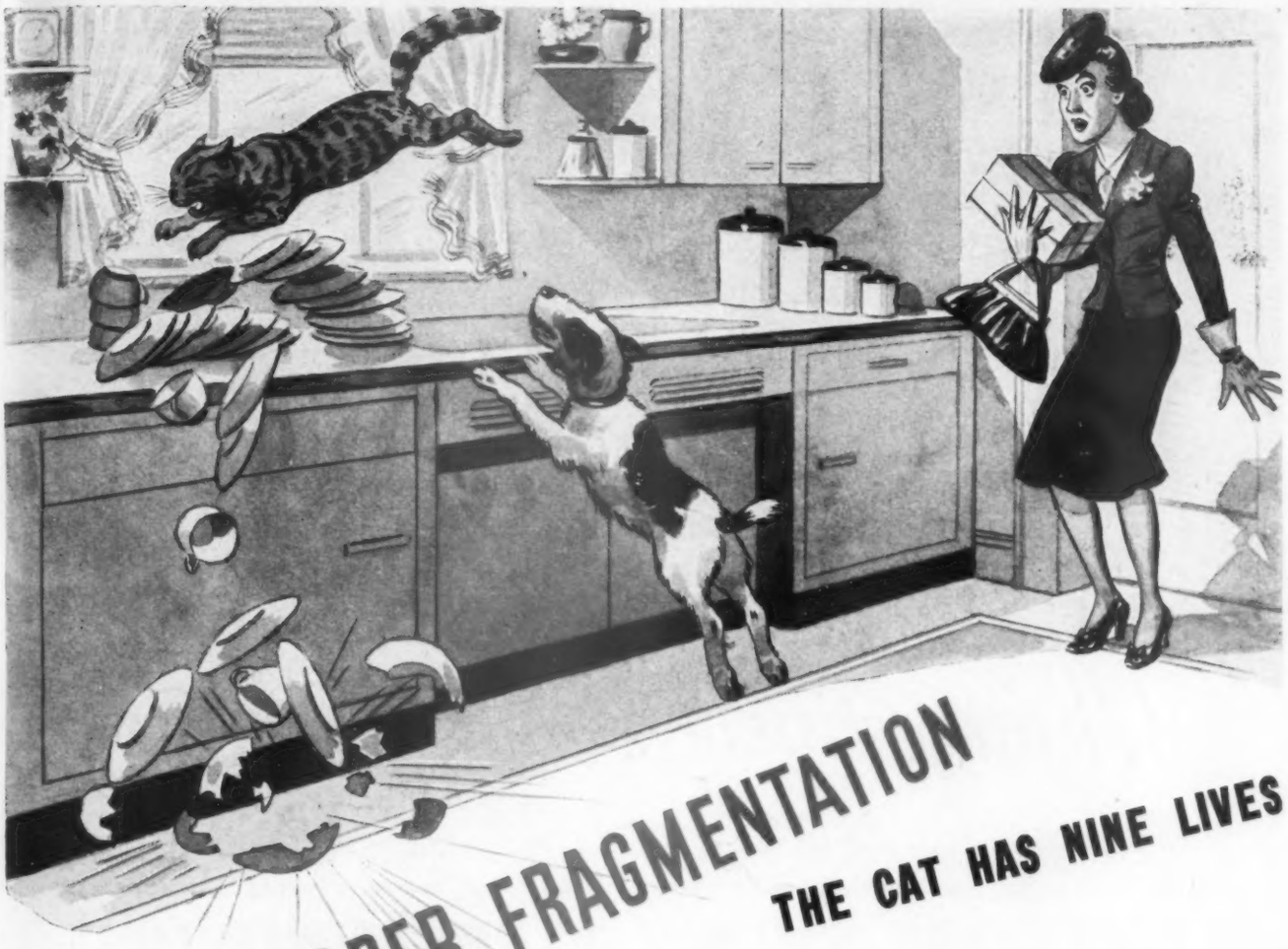
Mack Trucks, Inc., Empire State Bldg., New York, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts.

Mack

TRUCKS

ONE TON TO FORTY-FIVE TONS; BUSES, FIRE APPARATUS AND MARINE ENGINES

BUY U. S. WAR BONDS



AVOID IMPROPER FRAGMENTATION

THE CAT HAS NINE LIVES

BUT YOUR SHOVEL HAS ONLY ONE

DOWN go the dishes in a noisy example of *improper fragmentation.* Bad news for the cat —bad news for the dog—bad news for the lady-of-the-house.

And improper fragmentation is even worse for you! For your expensive shovel has only one life. And explosives that bring down the stone in oversized pieces make your shovel old before its time.

Prolong the life of your shovel by using Detonite — the patented, surface-sensitized, high explosive that only King Powder can make. Detonite's heaving, spreading, pushing action assures not only breakage, but displacement as well. That means faster runs—and greatly reduces time out for breakdowns and repairs.

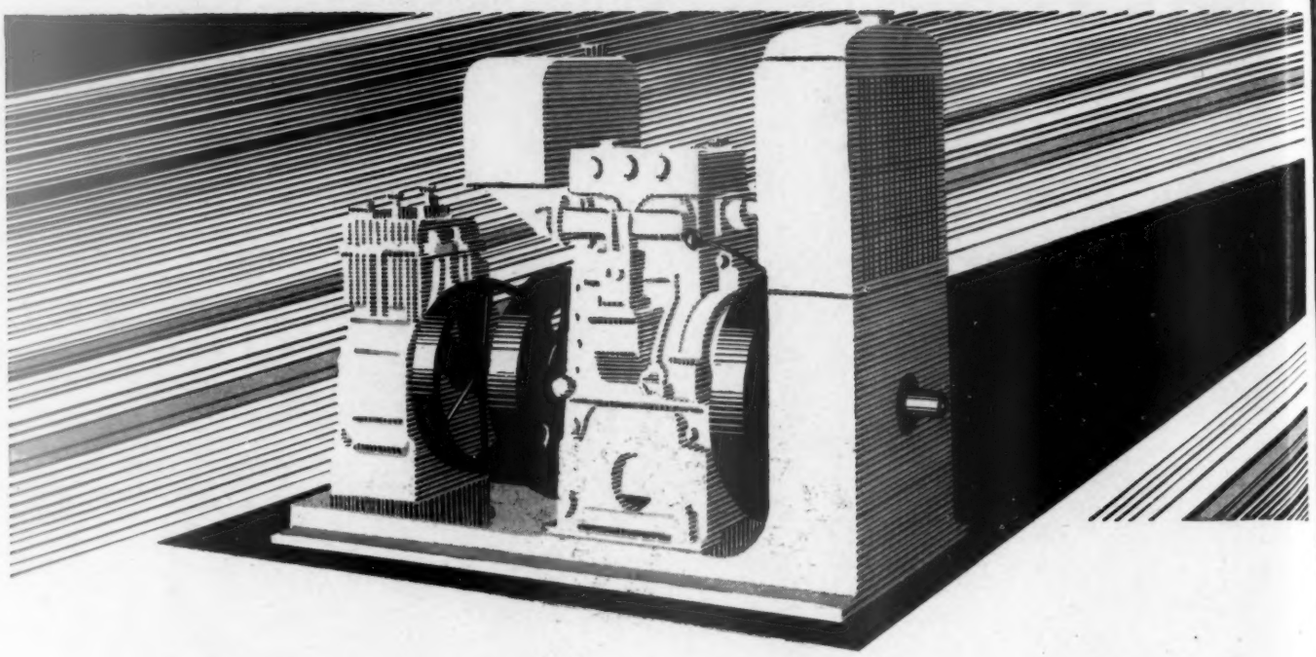
Prove to yourself that Detonite is a better explosive by letting us demonstrate it in your quarry and to you. See your local King representative or contact us direct.

MAKE A DATE FOR A DEMONSTRATION – TODAY!

KING EXPLOSIVES

THE KING POWDER CO. INC.

CINCINNATI 1, OHIO . . . . . INCORPORATED 1878



Chrome-lined Donkey-engine

The donkey-engine, though small, is a "man of all work" . . . on shipboard, in the mine, on construction jobs, in the oil fields and even on farms. Wherever there are tough jobs to do, we find the donkey-engine doing them.

Plain in appearance and with no fancy trim, these sturdy little work engines are nevertheless becoming large users of chromium, the modern decorative metal. But the donkey-engines don't use chromium for decoration, unless it is a "decoration" for greater reliability and lower maintenance cost. For the chromium they use is inside the cylinder . . . a chrome-lining . . . PORUS-KROME.

PORUS-KROME is hard, pure chromium which is applied to cylinder bores by the patented Van der Horst process. It has tiny pores and channels in its surface which serve as reservoirs for lubricating oil, feeding it back to the surface as needed. It reduces corrosion and wear and multiplies cylinder life 4 to 20 times, and ring life 3 to 4 times.

Every type of heavy-duty engine needs and uses PORUS-KROME . . . bus, truck, tractor, locomotive, marine, stationary power plants . . . large and small . . . even donkey-engines.

You would expect that anything as good as PORUS-KROME would be used by the Army and Navy. It is . . . in engines for submarines, destroyer escorts, mine sweepers, landing craft, tanks and airplanes. Right now, the entire production of the three Van der Horst plants is devoted to this work.

But someday soon, you too, can have PORUS-KROME. In the meantime, why not investigate the advantages PORUS-KROME will give your engines?

PORUS - KROME

Good for the Life of your Engines

VAN DER HORST

U. S. PATENTS 2,048,578 AND 2,514,604

VAN DER HORST CORPORATION OF AMERICA OLEAN • NEW YORK CLEVELAND 11 • OHIO

AN AFFILIATE OF DRESSER INDUSTRIES

TAMPTITE MAKES

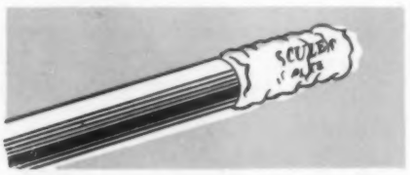
LOADING EASY, SIMPLE, EFFECTIVE

● The power of the dynamite is concentrated in the bore hole for maximum blasting effectiveness when you use Hercules patented Tamptite cartridges. Tamptite shells slide easily into the bore hole, and expand with slight pressure of the tamping rod to fill the hole tightly.

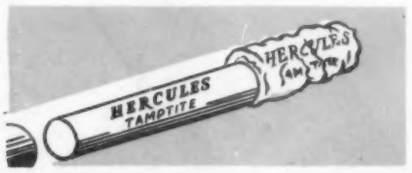
Tamptite cartridges conserve man-hours, eliminate completely the slitting of cartridges and loose, spilled powder around the working area. They give you better breakage, faster handling of materials, and, thus, increased output.

When ordering your favorite Hercules mining explosives, be sure to specify . . . "In Tamptite cartridges."

With Tamptite cartridges, the bore hole is loaded in the usual manner. No wasted time slitting cartridges.



The tamping rod packs the charge snugly in the hole, leaving practically no air space around the dynamite.



Continue inserting Tamptite cartridges and compressing them until the desired loading is achieved. This compact charge means better breakage, speedier mucking, a faster mining cycle.

HERCULES
EXPLOSIVES

XR-51

HERCULES POWDER COMPANY INCORPORATED 960 KING STREET, WILMINGTON 99, DELAWARE

STURTEVANT
AIR SEPARATOR

The Yardstick of Efficiency in *Fine Sizing*

Does your separating plant measure up to today's urgent demands for accurately sized materials?

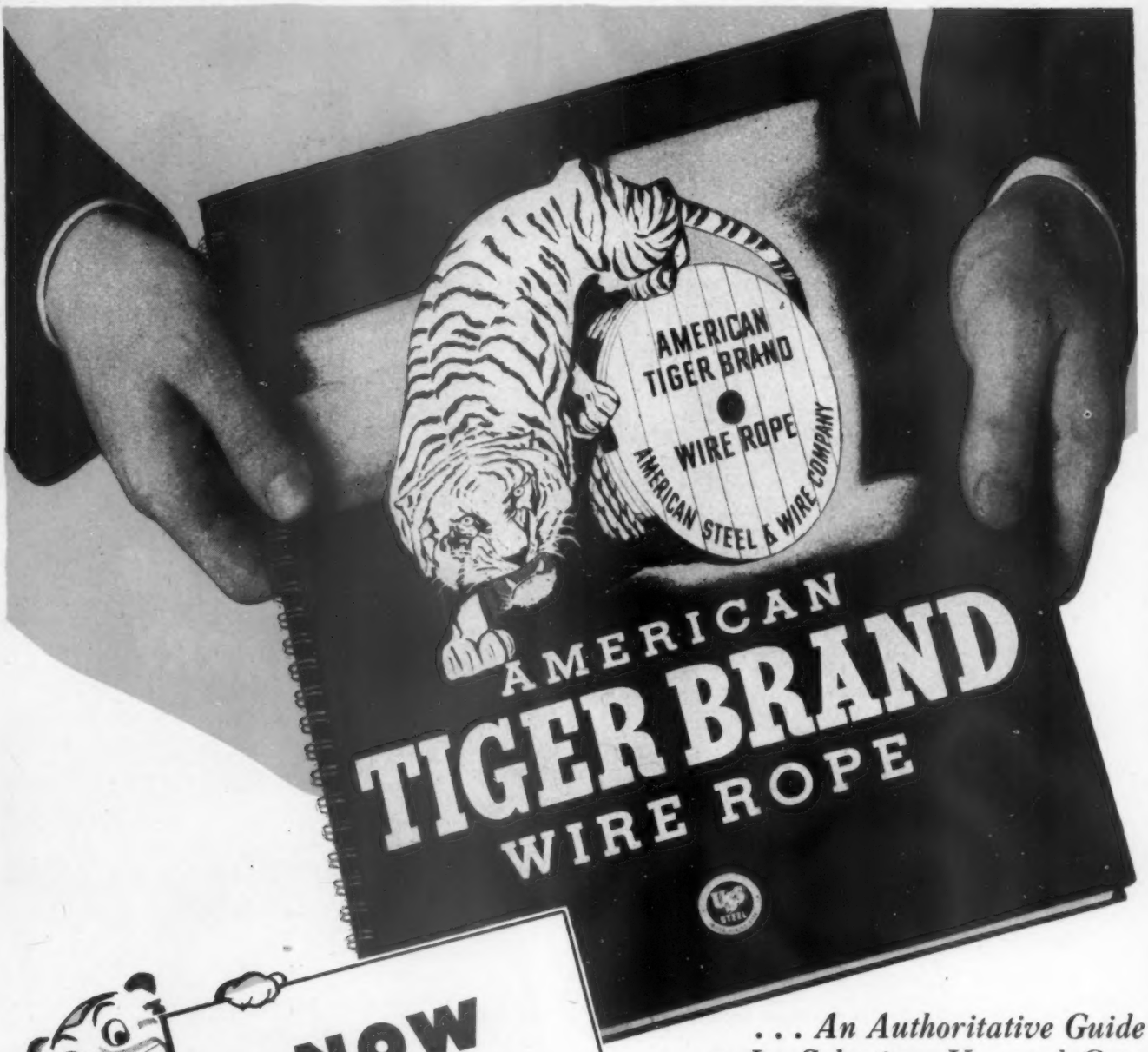
STURTEVANT Air Separators — a standard unit for all "round" performance — offer a sure means of improving your output figures and cost sheets.

STURTEVANT owners expect — and get—capacity increases up to 300%, a perfectly uniform product in the 40 to 350 mesh range, and marked saving in power requirements and maintenance.

The cement industry alone has installed hundreds of our Air Separators on approval. NOT ONE has been rejected.

Write for Information

STURTEVANT MILL CO. HARRISON SQUARE **Boston 22, Mass.**



NOW READY

New Book on Wire Rope

. . . An Authoritative Guide on Its Selection, Use and Care

JUST off the press—AMERICAN TIGER BRAND'S new catalog—125 pages crammed with illustrations, specifications and descriptive material to help you select the wire rope that's exactly right for your particular job. In addition, special chapters feature modern methods of splicing, socketing, lubrication, and other facts essential to the proper use and care of wire rope in every field.

This catalog covers the complete range of both AMERICAN TIGER BRAND Excellay Preformed and AMERICAN TIGER BRAND Standard Non-Preformed Wire Rope and accessories.

This valuable book, with its quick-reference indexed pages should be in the hands of every man who buys or uses wire rope. A request on your letterhead will receive prompt attention.

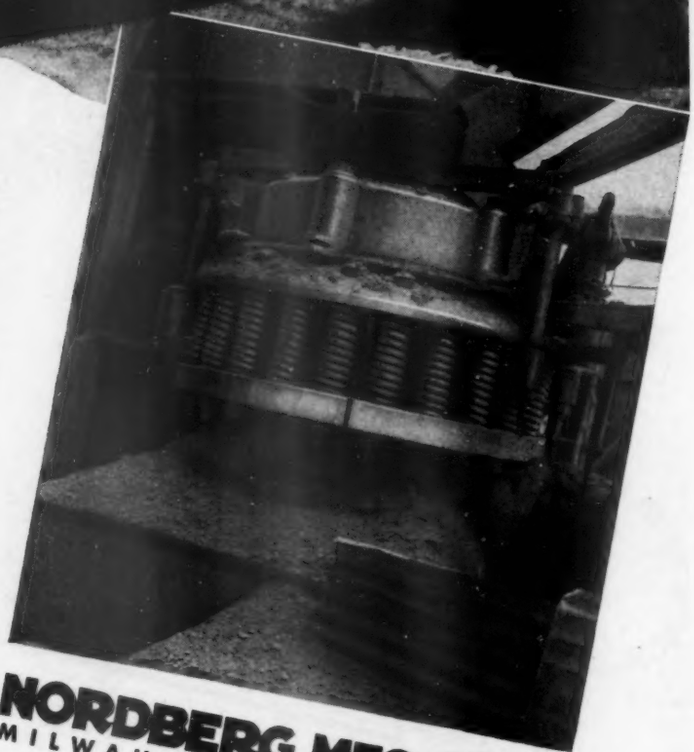
AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York
COLUMBIA STEEL COMPANY
San Francisco
United States Steel Export Company, New York

USS STEEL

UNITED STATES STEEL

CONE DOES THE FINE CRUSHING AT THIS MODERNIZED QUARRY

In 1929, the Casper Stolle Quarry of East St. Louis installed a 3 foot Symons Cone Crusher. It was originally used for ordinary reduction crushing but with a greatly increased demand for agstone and other finely crushed limestone products, it was moved into a new modern plant specially equipped to make these finer sizes. This is typical with Symons Cone users everywhere. When greater output of more finely crushed materials is required, you can depend on Symons Cones not only to deliver in quantity but provide a more desirable product at lower cost.



NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN
NEW YORK · LOS ANGELES · LONDON · TORONTO

NORDBERG MACHINERY

SYMONS CONE CRUSHERS

AID TO LOWER

(Above) Loading rocks into trucks in limestone quarry with a T4.

(Below) T4 TRAXCAVATOR loads light bituminous surfacing from stock pile.

MATERIAL HANDLING COSTS

Put a TRAXCAVATOR to work on your digging, loading and material handling jobs and watch costs go down! These fast-working, highly mobile machines dig big loads with ease, carry them where needed and dump them into trucks, cars, hoppers or stockpiles. Stripping overburden, loading blasted rock or sand from the pit, carrying from stockpiles to hopper — are some of the many ways TRAXCAVATORS are cutting production costs and solving the manpower problem in pits, quarries and plants. They can probably help you too, so write us for full information and the name of the nearest dealer. TRACKSON COMPANY, Milwaukee 1, Wisconsin. Address Your Inquiry To Department PQ35.

TRAXCAVATOR

REG. U. S. PAT. OFF.

DIGS GRADES

THE ORIGINAL TRACTOR EXCAVATOR

LOADS CARRIES

PIT AND QUARRY

MARCH, 1945

Vol. 37 No. 9

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PIT AND QUARRY IS INDEXED IN THE ENGINEERING INDEX

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EDITORIAL

National Service Legislation

REPORTS of serious shortages of man power presented at the convention of the National Crushed Stone Association and the board meetings of the National Sand & Gravel Association and the National Ready Mixed Concrete Association held in New York in January provided additional evidence, if any more could have been needed, of the grave shortages existing in many widely-separated areas of the United States and of the belief, general among producers in those fields, that the situation is growing steadily more serious. Employers in industries without established or recognized essentiality status find it extremely difficult and often impossible to obtain men, not only for the operation of equipment employed in producing materials to be used in construction rated as essential, but even for the driving of trucks loaded with such materials to the sites of war construction, where the contractors have little or no trouble in finding the workers they need.

These industries have more than an ordinary interest in the national legislation proposed for the drafting of labor and the transfer of workers from occupations and industries, which are not rated as essential, and even from agriculture, which practically everyone would classify as essential, to war plants. In the Lehigh Valley district more than 300 men were recently transferred from their jobs in cement plants to work in factories engaged in war production without any national service legislation. The prospect for employers and workers in industries that have not been given an essentiality status is discouraging to say the least.

In his statement presented to the Senate committee considering the May-Bailey War Service Bill, Under-Secretary of War Patterson disclosed facts which make the enactment of that bill appear in the light of a "first must" for the Congress. He said it would make available to war industries hundreds of thousands of men in the 18-to-45 age group who cannot now be enlisted by the government through any existing means and that it would provide the machinery for keeping workers now engaged in war industries at the jobs for which they are best fitted by experience and training, and thus put a stop to the intolerable labor turnover—amounting to 84 per cent. a year—under which all industries are now struggling. Mr. Patterson mentioned also the effect of national service legislation on the morale of the men in the country's fighting forces as well as its effect on the spirit of their enemies.

The opposition to the enactment of such legislation is very strong. It springs, like the opposition to conscription, from man's deep love of liberty and, particularly, civil liberty. But, in addition to such natural opposition, there is that which stems from self-interest —the fear that the power to draft labor, like the power to draft men for the military services, may ultimately be extended to the drafting of wealth. There is, of course, everywhere the fear that such a draft would make serious inroads on the working forces and productive capacities of individual enterprises and, indeed, of entire industries, causing interruptions and cessations of production that might only with great difficulty and a great cost be repaired, if at all, after the war.

We, like all other employers, know what it means to try to maintain, not only an efficient but even any type of working organization, in the face of the temptations which lead workers to abandon one job for another. In addition to pecuniary reasons, which are easily understandable, there are scores of others, capricious almost beyond belief, that keep the working forces of America in a continuing ferment of instability, while the military needs of a fighting nation depend on the whims and economic opportunities of hordes of men and women who should be serving where they are most needed, but who serve, instead, where it pleases them best.

We have heard all the arguments against a national service law—those of the farmers, those of the industrialists, those of the labor unions—and we think we understand the fears that beset them all. From some of these groups we hear a plea that is but newly-adopted, the claim that business, labor and even government, if left to themselves, can accomplish by voluntary methods as much as can be done by compulsion. We would be the last to mistrust the honesty, sincerity or capacity of these groups to arrive ultimately at a common understanding of aims and methods and a solution of most of the industrial and social problems that plague us. But such delightful and much-to-be-desired means and ends are not attained quickly, and the situation which faces the country is one of great emergency, the exact extent of which it may be impossible for any one of us to grasp.

THE right to work where we please, as long as we please and for as little or as much as we please—like the right to employ whom we please, whenever we please and on whatever terms we find most convenient —is one that Americans cherish and fight for, even against foreign enemies as well as among ourselves. In the present emergency — and for the emergency only, we hasten to add—we believe that legislation which will enable the government to place men and women workers where they can serve their nation best, despite its burdens here and there and despite the compromise we all must make with our love of civil liberty in accepting it, is of the utmost national importance. In saying so, we do not abandon one whit of our belief in the practicality of voluntary co-operative efforts in the spirit of true democracy, nor do we feel that we are inviting future trouble for those of us who believe in private competitive enterprise.

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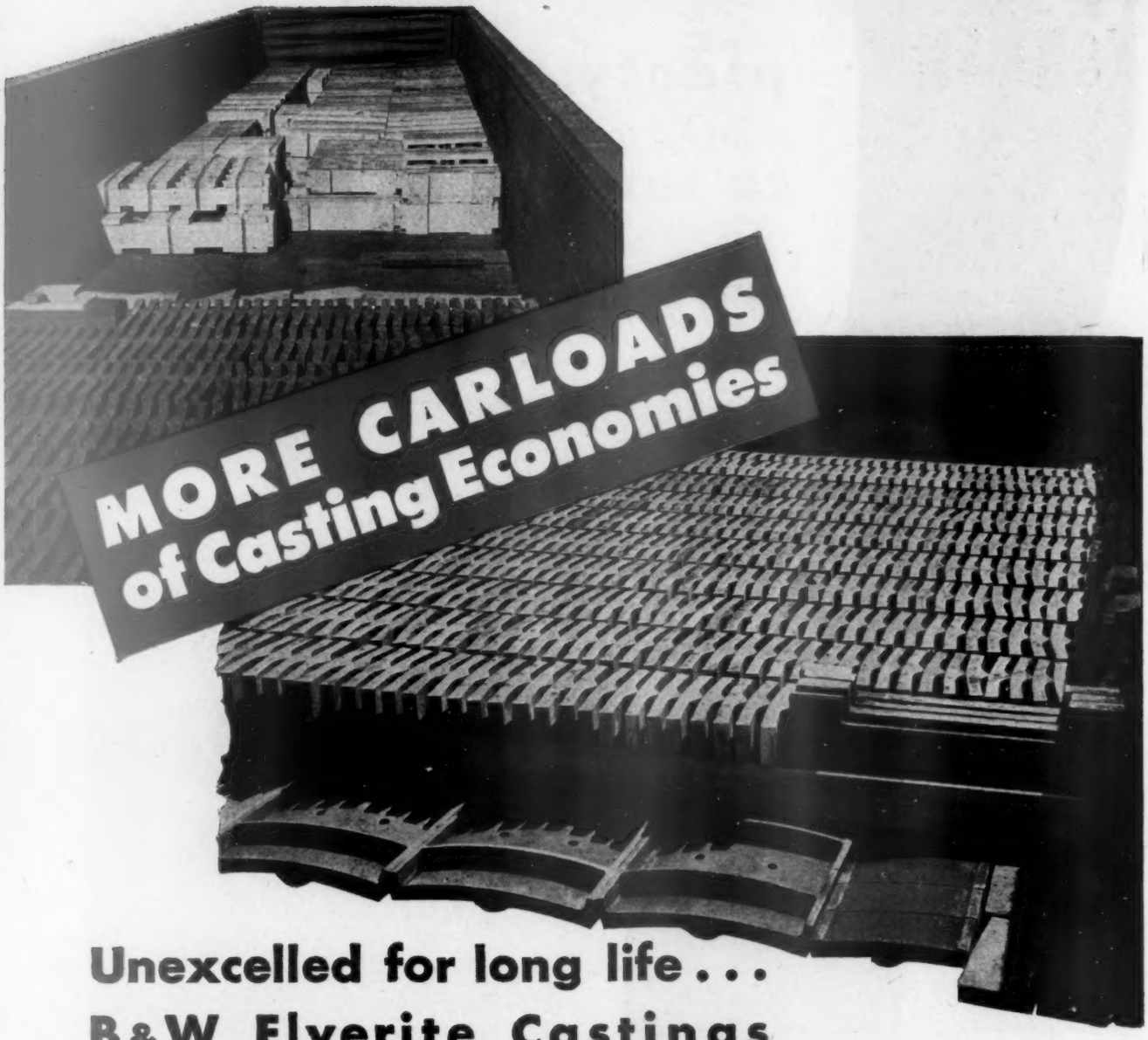

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C-61

Universal Atlas Buys Wabash Cement Plant at Osborn, Ohio

Blaine S. Smith, president, Universal Atlas Cement Company, New York, recently announced the purchase by that company of certain physical assets of the Wabash Portland Cement Company, Osborn, Ohio, consisting principally of lands, buildings and machinery embraced in the Osborn cement plant.

Mr. Smith said that after extensive repairs and improvements, the plant, which has been shut down for more than a year, would again be placed in operation and will be known as the Osborn plant of the Universal Atlas Cement Company. Mr. Smith added that the acquisition of the Osborn plant will enable Universal Atlas to give improved service to its customers in southwestern Ohio, southeastern Indiana and eastern Kentucky, including the important markets of Dayton, Cincinnati, Columbus and Springfield.

The Osborn plant, which has a capacity of about two million barrels per year, will manufacture Universal portland cement, Atlas Duraplastic air-entraining cement, Atlas High-Early cement, and Atlas Mortar cement.

A.S.T.M. Cancels Committee Week

After consultation with the Government's War Committee on Conventions, the American Society for Testing Materials canceled A.S.T.M. Committee Week which had been planned for Pittsburgh, during the week of February 26; the spring meeting of the Society scheduled for Wednesday, February 28, also is being postponed. While much of the committee work deals with production problems involving specifying and testing of war materials, Committee Week would have brought together several hundred persons in one place in a period of three or four days and the government feels that this is most inadvisable in the present transportation emergency. The spring meeting was to comprise a Symposium on Corrosion Prevention which will be held at some appropriate time and place in the future when the present emergency has passed. Further announcement will be made concerning plans for the symposium.

Foundry Congress Meeting Cancelled

Cancellation of the 1945 War Production Foundry Congress of the American Foundrymen's Association, scheduled to be held in Detroit, April 30-May 4, was announced recently at a meeting of the Association's board of directors held here. Although the meeting was to have been devoted exclusively to the presentation of technical papers and reports valuable to the production of castings for war purposes, the society's officers voted adoption of an emergency program to accomplish its aims with minimum use of transportation and hotel facilities.

Stop Magnesium Output in Gov't-Owned Plants

The War Production Board has announced that the production of magnesium metal in government-owned plants had virtually ceased by January 1. The Board scheduled the closing of two additional plants in Texas and Washington and further curtailment of production in one other plant in Ohio.

This action is being taken because military use of magnesium has continued to decrease and because the surplus stocks of the metal have almost doubled the amount of the safety reserve as established by WPB. Magnesium is chiefly used in the manufacture of aircraft and incendiary bombs. It is also exported and used as an alloy with aluminum.

Highway Work to Employ Over Million Men, Official Predicts

Needed highway and street construction and maintenance offers continuous employment for more than a million men for at least three years after the war, it was estimated by Hal H. Hale, executive secretary of the American Association of State Highway Officials, in an address Jan. 18 in New York during the 92nd annual meeting of the American Society of Civil Engineers.

Pointing out that three years of war, during which only the most essential work has been done, has left the nation's highways and streets in bad condition, Hale said that the cost of projects currently proposed to restore the nation's roads and prepare them for an anticipated postwar traffic increase is now estimated at $8,281,000,000.

He estimated that 600,000 men will be needed for employment on construction of highways and streets and 423,000 for maintenance. He noted that the federal government had enacted legislation making $160,000,000 available for conducting surveys and preparing plans for postwar highway construction, as well as authorizing increased postwar federal aid for construction.

Joseph Burnett, chief of urban roads, Public Roads Administration, Federal Works Agency, Washington, told the engineers that expected growth of street traffic after the war will greatly exceed the capacity of existing surface roadways that were not planned for express travel. He said this will make it essential to construct express highways in many urban areas.

John P. Hogan, a former president of the society, said that South America is badly in need of all-weather highways from centers of production to centers of consumption, rather than "spectacular projects" like the Pan-American Highway.

Newly-Formed Agstone Ass'n States Aims and Elects Officers

A NEW organization which will be known as the National Agricultural Limestone Association, Inc., has been formed under the membership corporate laws of the state of New York to promote the interests of agricultural-limestone producers throughout the United States, according to information supplied to PIT AND QUARRY by Joseph Mills, president and general manager of the Bellefonte Stone Products Corporation.

The charter provides for the minimum of 3 and the maximum of 25 directors, and 5 regional vice-presidents will be elected as provided by the by-laws.

The following officers have been elected:

President: Joseph Mills.
Executive Vice-President: R. P. Munz.
Treasurer: Donald U. Smith.
Secretary: E. R. Scheuner.

The executive committee is comprised of the officers and George W. Mintz and Davis Rich II.

The board of directors as at present constituted includes the following men:

Paul Brown, Porter Brown Limestone Company, Springfield, Tennessee.
W. L. Bryan, W. J. Bryan & Son, Red Wing, Minnesota.
W. H. Cox, Jr., Nashville, Tennessee.
John M. Deely, Lee Lime Corporation, Lee, Massachusetts.
Keith B. Dusenbury, Dusenbury Limestone Products Corporation, Malvern, Kansas.
C. A. Langford, Gallatin, Tennessee.
Erwin Lanning, Larion, Iowa.
Edward J. Leary, Edward J. Leary Construction Company, River Falls, Wisconsin.
Horace T. Long, Louisiana Limestone Company, Shreveport, Louisiana.
Joseph Mills, Bellefonte Stone Products Company, New York City.
George W. Mintz, Michigan Limestone & Chemical Company, Buffalo.
Clarence A. Munz, Eastern Rock Products, Inc., Utica, New York.
Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wisconsin.
R. J. Pleasant, Anchor Stone & Materials Company, Tulsa, Oklahoma.
E. M. Prettyman, Annville Stone Company, Hershey, Pennsylvania.
Davis Rich II, Swanton Lime Works, Inc., Swanton, Vermont.
E. R. Scheuner, Bellefonte Stone Products Company, New York City.
E. T. Spidle, Montgomery Limestone Company, Montgomery, Alabama.
Donald U. Smith, D. U. Smith & Brother, Ashley Falls, Massachusetts.
R. T. Willingham, Willingham-Little Stone Company, Atlanta, Georgia.

The stated objectives of the new association are:

(a) To protect, promote, foster and advance the progress and development of the agricultural-limestone industry, and a high standard of business ethics, and fair and just competitive methods among those engaged therein;

(b) To encourage and conduct scientific research into all branches of the industry, including the production, distribution and consumption of all its products;

(c) To encourage and extend scientific research in agriculture, cattle and poultry raising and animal husbandry, and to coöperate in all fields of allied scientific research which will assist in extending markets for agricultural limestone;

(d) To procure and disseminate among its members, the consumers of agricultural limestone, and the public generally, useful knowledge pertaining to scientific developments of agriculture, with particular reference to the vital importance of agricultural limestone in providing the basic chemical elements necessary to soil fertility, and for health, vigor and growth of food crops, animals, poultry and humans;

(e) To assemble and distribute among its members information on the use of agricultural limestone by consumers thereof throughout the entire year, and to otherwise carry out informational work designed to extend the periods of production of agricultural limestone and reduce the cycles of seasonal demand;

(f) To encourage medical research in fields relating to improved nutritional standards, better national health, and increased longevity in their relationship to the contributions made by agricultural limestone in providing the minerals and basic chemicals, and enriched feeds and food products essential to this accomplishment;

(g) To cultivate, promote and foster relations between the agricultural-limestone industry and the members thereof and the manufacturers of machinery, equipment and supplies which are generally used and consumed by the industry, and to otherwise promote improvements in the several articles necessary to the productive process of the industry;

(h) To coöperate with and otherwise voluntarily aid and assist state and regional agricultural-limestone trade associations in matters of general national interest to the industry, and to make available to such associations machinery for the peaceful settlement of disputes between members of the industry and their employees or customers;

(i) To protect the industry against unfair and unjust burdens and exactions;

(j) To inform its members and promote their joint interests in connection with federal, state and local legislation and departmental regulations, whether enacted or proposed, in so far as they pertain to the industry;

(k) To publish and distribute to its members bulletins embodying information concerning legislation, agricultural and other scientific research pertinent to the industry; and generally to do all things which may be considered necessary to the foregoing results, or which may be calculated directly or indirectly to promote and advance the interests of the corporation and its members.

In disclosing this information Mr. Mills said: "It will be apparent that the circumstance which prompted the formation of the association was the non-existence of any national organization designed to promote solely or primarily the interests of the agricultural-limestone industry. Everyone is aware of the modest beginning of the industry and the major proportions it has now attained, and can likewise appreciate the numerous difficulties which will confront the industry in the absence of a coordinated, aggressive effort to expand markets to cushion against possible diminishment in the volume of federal purchase of conservation limestone. The producers of agricultural limestone also produce other pulverized products, such as mine dust, mineral feed, fertilizer and other industrial fillers. The total value of the products for 1944 closely approached $100,000,000. Thus, it does not seem unusual that the industry should be represented by a democratic organization to discharge the usual functions of a national trade association.

"This association," Mr. Mills concluded, "will not concern itself in any particular with pricing policies of producers who constitute its membership, nor will it undertake to exert any influence relative to the standards of fineness or chemical composition of the agricultural limestone used in various areas of the country."

Columbia Chemical Buys Pacific Alkali Plant

The Columbia Chemical Division of the Pittsburgh Plate Glass Company has acquired the plant and other assets of the Pacific Alkali Company of Los Angeles. The plant is located at Bartlett, in the Owens Valley, about 220 miles north of Los Angeles.

Pacific Alkali has been producing soda ash, borax, and sesqui-carbonate of soda at this location for the last 18 years. The deposit is the dry bed of Owens Lake, believed to be the richest natural alkali deposit in the country. At the turn of the century the lake covered an area of 100 square miles, forming the dead end of the Owens River. After the Los Angeles Water Department diverted the water from Owens River in 1912, the waters evaporated and by 1925 the lake bed was dry and solidified. The deposit, a white crystalline material, was about 16 miles square and up to 8 feet in thickness.

George D. Dub, general superintendent at Bartlett for many years, has been retained by the new owners.

A. G. Seitz Honored by Company Associates on His Retirement

Albert G. Seitz, who retired recently from active duty as vice-president in charge of operations of the General Crushed Stone Company, Easton, Pennsylvania, was the pleased recipient of a handsome engraved watch, which was presented to him during the course of the National Crushed Stone Association's convention in New York last month. The watch, a gift from his associates in the General Crushed Stone Company, bore the following inscription:

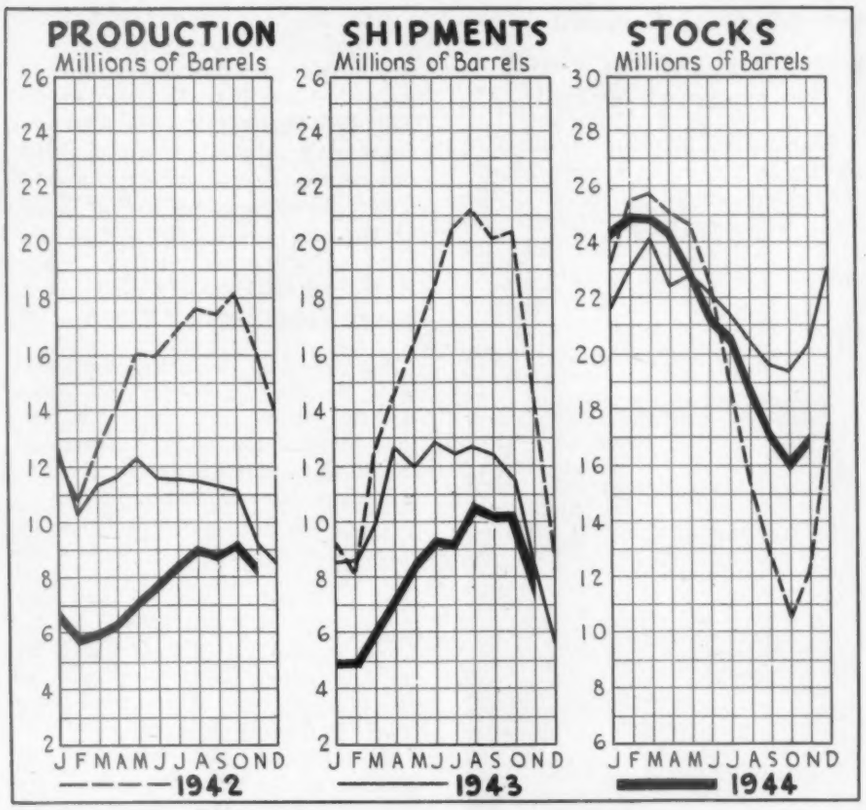
Albert G. Seitz, left, receiving watch from G. E. Schaefer, district sales manager.

A. G. Seitz
Retiring Vice-President
The General Crushed Stone Company
From Admiring Associates in the Main,
Sales and Operating Offices
12/31/44

Mr. Seitz' career in the limestone business covers a span of more than 50 years, dating back to 1893 when he accepted his first position with the Kelley Island Lime & Transport Company at Marblehead, Ohio. He became vice-president and manager of the Rock Cut Stone Company and following the consolidation with the General Crushed Stone Company in 1929 he was placed in charge of the central New York properties as managing director.

In 1931 Mr. Seitz became vice-president in charge of the entire operations of the General Crushed Stone Company, and he filled this responsible position until his retirement several months ago. He will remain as a vice-president and director of the company.

It is understood that Mr. Seitz, who observed his 69th birthday on February 21, will spend much of his time in Florida, where he has an attractive home at Vero Beach.



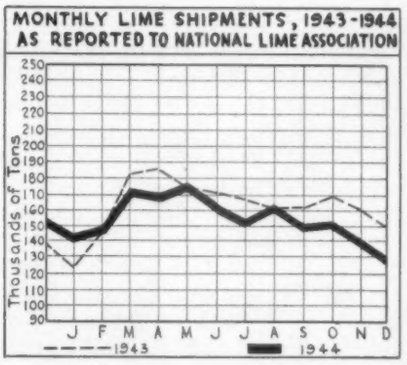
Output of cement during November, 1944, totaled 8,304,000 barrels, or 11 per cent. below production of November, 1943. Mill shipments of 7,380,000 barrels during November were 13 per cent. below the movement from mills in the same month of 1943. Stocks of finished cement at mills on November 30 totaled 16,973,000 barrels, a slight increase over the quantity on hand at the end of October

Agstone Production in Nova Scotia Is Soaring

The Nova Scotia government has reported increased production of limestone for 1944, as compared to 1943, of 60,000 tons. The 1944 output consisted of 300,000 tons. The annual production of limestone and dolomitic limestone for agricultural purposes has increased each year. Since the start of the war, the producers have found it impossible to keep pace with the demand In addition to the quarries owned and operated by private firms, there has been a marked development in co-operatively operated quarries. The number of groups of farmers who have taken to getting out limestone for farm use has increased. The Nova Scotia agriculture department is helping the farmers in these projects.

The provincial government is investigating additional limestone deposits and paying specific attention to locations that are well situated for railway or waterway shipment. Diamond drilling was used on these properties during 1944, and this policy is being continued this year. A list is being prepared for investigation.

One limestone quarry is being used entirely for the manufacture of sulphite pulp, in a Nova Scotian plant.



According to data collected by the National Lime Association, 55 companies in December, 1944, shipped 129,124 tons of lime (94,087 quicklime; 35,037 hydrate). Reporting companies represent 43.6 per cent. of the association members' total capacity of record. Based on PIT AND QUARRY'S estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 325,000 tons. Shipments of lime by users for November, 1944, were:

Use	Quicklime (tons)	Hydrate (tons)
Agricultural	622	5,315
Building	7,684	9,433
Chemical	85,781	20,289
Total	94,087	35,037

President of Canada Cement Company Made a Governor of McGill

John David Johnson, president of the Canada Cement Company, was recently appointed a member of the board of governors of McGill University, Montreal. The new appointee fills the last vacancy on the board, bringing the total number up to 25 in accordance with the statutes of the university. Mr. Johnson will serve as chairman of the board's building committee.

John D. Johnson

The new board member is a native of Malagash, N. S., and received his early education in that province. He first secured employment with Dominion Iron & Steel Company at Sydney, N. S., and in 1903 joined the Canadian Portland Cement Company at Montreal, and from there went to the Ravenlake Portland Cement Company in Ontario as secretary. In 1918 he joined the Lehigh Portland Cement Company's organization, whose mills at Belleville, Ontario, commenced operations in that year. He had charge of sales in Canada. On the formation of the Canada Cement Company in 1909, Mr. Johnson was appointed sales manager at Toronto; he was made general sales manager in 1919 with headquarters at Montreal; was appointed vice-president and general manager in 1927 and president in 1931.

He is a member of the executive committee of the Canadian Chamber of Commerce and of the executive committee of the Canadian Manufacturers Association, an affiliate of the Engineering Institute of Canada; and a member of the Mount Royal, St. James's Royal, Montreal Golf and Bruno Country Clubs, of Montreal; Rideau Club, of Ottawa; Garrison Club, of Quebec, and Knowlton Golf Club, Knowlton, Quebec.

Mr. Johnson has served for the past four years as a member of the Advisory Council of the School of Commerce, McGill, and is a member of the Board of Governors of Trinity College School at Port Hope, Ontario.

Kittitas Diatomite Co. Increases Size of Plant

Launched 20 years ago on a small scale, the silica plant operated by the Kittitas Diatomite Company at Kittitas, Washington, has been increased in size three times in recent years to keep pace with demands.

Five carloads, approximately 150 tons, of ground silica is now being produced and shipped weekly. It is used in a wide variety of industrial applications and one of the newest, which has been developed largely by the company itself, is its use in crop-dusting, the application being made by low-flying airplanes.

John C. Sorenson is president and general manager. The company's sales for 1944 were in excess of $150,000.

Trend in Private Construction Shown by New York Survey

More than 50 per cent. of the nation's basic industries plan to do some building as soon as government restrictions on civilian construction are lifted, according to the findings of a survey by the Turner Construction Corporation, as made public recently in New York.

Of those companies not planning to erect new structures, 33⅓ per cent. indicated they were planning expansion of existing facilities; 8⅛ per cent. reported plans for adding space to present structures, while 3⅛ per cent. reported plans for alterations.

The survey indicated there is little interest among industrial executives in new building materials. Those reporting expressed belief there would be little change in structural materials used in industrial construction.

The flotation mill of Kramer Mines, Inc., near Salida, Colorado, was destroyed by fire recently.

18 Cement Plants in Pennsylvania Area Lose 342 Workers to the W. M. C.

another P&Q exclusive

EIGHTEEN cement plants in Lehigh and Northampton Counties, part of the Allentown, Pennsylvania, area of the War Manpower Commission, have sacrificed 342 of their workers to the war effort. The men have been transferred to critical and high-priority war plants in the Allentown area under the W. M. C.'s Allentown Plan, which already has been applied in other areas (Newark and Trenton, New Jersey, and Harrisburg, Pennsylvania) to meet shortages of man power in war industries.

The 18 affected plants are operated by 14 companies. The companies, the previous man-power ceilings and cut-backs follow:

Company	Previous Ceilings	Cut-Backs
Allentown	12	0
Alpha	206	25
Coplay	195	87
Giant	88	4
Hercules	164	6
Keystone	183	6
Lawrence	35	3
Lehigh	370	39
Lone Star	179	91
National	24	1
Nazareth	202	17
Pennsylvania-Dixie	288	18
Universal Atlas	391	40
Whitehall	58	5
Totals	2,395	342

The proportionately high cut-backs in the Coplay and Lone Star plants were explained in this way by Dr. Frank Maguire, W. M. C. area director:

At Coplay Cement the machine shop for a long period has been engaged in the production of artillery shells. The Coplay management arranged for the transfer of 87 men directly from cement production to the shell line, where 95 workers already were employed. The transfers to the shell line, although all were not ordered by the W. M. C., were credited by that agency to the company under the Allentown Plan.

Lone Star originally was asked to give up 23 of its workers, but offered to release an additional 68 for jobs in war plants, taking a voluntary man power ceiling cut of 91, with which it was credited by the W. M. C.

Dr. Maguire declared that cement has been removed from the essential category, although most of the output of the industry has been used in essential military and civilian enterprises, including war-plant construction. Industry efforts in Washington to have the industry declared locally essential have failed.

Cement plants were chosen to be

among the first to take man-power ceiling cuts, the W. M. C. chief continued, because "their silos are filled with enough cement to serve for many months without further production. The industry will not become essential until the stored supplies reach the bottom."

Spokesmen for the industry have been silent, except for a brief comment on January 24, when the Allentown Plan began operating, by Joseph Young, president of the Lehigh Portland Cement Company. Mr. Young declared that storage facilities at plants in this area at their maximum will hold a two-month supply.

Originally slated for cut-backs similar to those which were made in the cement industry were slate producers. However, after a meeting with management representatives of 100 per cent. of the industry, Dr. Maguire issued this statement:

"In consideration of the point to which man power has already been reduced by various means, including previous voluntary releases to the W. M. C., the industry as a whole does not present a fertile field from which to draw additional man power."

Original W. M. C. figures showed that 13 slate operations in the territory employed 588 men.

Partially responsible for the decision to delay or completely cancel transfers from the slate industry was the fact that several of the companies were planning applications for certification as essential industries. One company, the Doney Slate Company, already holds such a designation.

Dr. Maguire, after the conference, pointed out that the slate industry is engaged in furnishing large quantities of material for necessary completion of buildings in war activities, such as construction of veterans' hospitals, Army barracks, blackboards for Army and Navy educational programs and many other war-economy uses.

As evidence of the good intentions of the company to reduce man-power usage to the minimum, he cited the action of the Bangor-Jackson Slate Company in voluntarily releasing 29 men to the Easton office of the United States Employment Service for referral to war jobs.

Although the Allentown Plan has been generally regarded as a product of the local W. M. C. office, actually it is based on the Byrnes directive of July 1, 1944, which established the labor-priorities and employment-ceiling programs. The plan was discussed by the Allentown area labor-management committee last September, but it was not until December 27 that steps were taken to put it into operation, with the full endorsement of the labor-management committee, chambers of commerce and other interested groups.

The first public announcement came December 27, when Dr. Maguire informed the press that all less-essential industries would be asked to accept a 10 per cent. reduction in their male employment ceilings as of January 15. The 10 per cent. figure, however, has proved to be flexible. In the case of the cement industry the over-all figure is slightly more than 14 per cent. In the brewery, bottling and beverage distribution industries the figure is approximately 13½ per cent.

Dr. Maguire has pointed out that cut-backs will be based entirely on the ability of industries to spare man power, the type of workers available and the types of jobs in war industries which are vacant.

The first step in the application of the plan was a complete survey of all employment in all plants which fall within the less-essential category. This survey included the employment ceilings and actual employment on July 1, 1944; the number of employees November 1, and the number of employees on January 1. The employees were broken down into groups, including female, male and "covered male" (*i.e.*, men who come under the jurisdiction of the War Manpower Commission; veterans of World War II, for instance, are "free agents," not subject to the usual W. M. C. controls and not considered in setting employment ceilings).

After the original surveys were received the W. M. C. coördinated the information and determined which industries should first be chosen for ceiling cut-backs and asked to release workers to the U. S. E. S. for referral to war plants.

When specific industries were chosen, local U. S. E. S. offices made complete man-power inventories in all plants within those industries, reporting on the number of men available, their present jobs, past skills and other pertinent information. These inventories were turned over to the W. M. C. for analysis and this led to the establishment of cut-back quotas. Efforts were made to equalize the cut-backs in proportion to total employment and, once the figures were set, industry representatives were called in, informed of their quotas and asked to prepare lists of workers for release to the U. S. E. S.

In the cement industry and others with contractual relations with labor unions, labor representatives were called in by the W. M. C. for separate conference. The W. M. C. arranged for labor and management to sit down together to prepare the release lists before they were submitted to the U. S. E. S.

When all these details had been completed, a specific date was set to begin the referrals. In cases where large numbers of workers were to be released U. S. E. S. interviewers were sent directly to the plants along with war-plant personnel representatives to contact the workers and arrange for referrals. Where smaller groups were involved, or if there was objection to on-the-spot recruitment, the workers were instructed to report to the district U. S. E. S. offices for processing.

The W. M. C., when it announced the Allentown Plan, requested that workers be retained on their jobs until placement in a war plant was confirmed. Another W. M. C. policy was to endeavor to place men in jobs which paid as much as, or more than, their previous employment.

Victor Thomas, business agent of the United Cement, Lime & Gypsum Workers' Union (A. F. L.), contends that both these policies have been violated. He charges that some of the workers scheduled for release were laid off before there were definite job placements, forcing idleness of varying periods. On wages, he contended, some workers suffered cuts ranging as high as 18 and 24 cents per hour through the transfers. (The basic wage rate in the local cement industry is about 90 cents per hour, while war-plant wages range from approximately 65 cents per hour upward.) However, W. M. C. contends in the over-all picture the cuts are not as serious as they appear, because many of the workers will be trained for skilled jobs with higher rates of pay or work in bonus groups which will raise their earnings above the basic level. Also, it was pointed out, war plants work the 48-hour week, which assures additional compensation at the overtime rate.

The Easton Central Labor Union, after discussion initiated by the Cement, Lime & Gypsum Workers' Union representatives, petitioned William Green, president of the A. F. L., to send an international official into the area to investigate the operation of the plan. The C. L. U.

voiced unqualified opposition to any form of labor draft.

For the most part, however, the plan has operated with little opposition. Both labor and management have expressed a willingness to cooperate with the W. M. C. in helping to fill the needs of war plants which, according to latest figures, require 1,079 male workers.

The first official breakdown of the transfer figures, covering both the cement industry and brewing and allied industries, showed that of a total of 424 male workers scheduled for transfer, 390 appeared at U. S. E. S. offices for interviews, 351 were referred and there were 336 confirmed "hires." Commenting on this report, covering the period from January 24 to February 9, Dr. Maguire said that some of the figures probably will be adjusted upward when the final tallies are received. Of the 34 who did not appear for interviews, he said some probably had chosen to accept military service rather than war-plant work, others may have retired and still others may straggle in for interviews. The 39 who were not referred, he said, have been sent back to their old jobs and probably substitutes will be called later. A complete check-back of incompleted cases is planned.

Of the 336 verified placements, 284 were made in highly critical establishments, the remainder in highly essential work. The 15 who were referred and have not yet been reported as definitely placed, he said, may have been hired although their records are not yet completed in U. S. E. S. offices. Others have been referred several times, but to date have not been accepted for new jobs.

One of the factors which is believed to have kept operations moving smoothly was coöperation between management and labor, both of whom have been lauded by the W. M. C. for their spirit. Arrangements have been made to protect the seniority rights and union membership of workers who were shifted. Wherever possible, it was endeavored to take the men on a seniority basis, but in order that operations would not be too seriously hindered, the cuts were spread over the various plant operations, resulting, in some instances, in men of long experience leaving for war jobs, while others with less time in the plant stayed on their jobs.

Although operation here was comparatively smooth, a situation which arose in the Philadelphia area gives cause for W. M. C. concern. In the Quaker City labor leaders were represented as being unwilling to coöperate unless the Selective Service System would give assurance that men over 30, when transferred to war jobs, would be assured deferments. A conference with Colonel Richard Mellon, State Selective Service director, failed to bring such assurance, so the Philadelphia situation continues unsettled.

Labor leaders there charged that draft boards have practiced harassing tactics, warning men to switch to war work and then classifying them 1-A and calling them up for induction shortly after they made the switch.

W. M. C. officials frankly admit that they do not have the statutory authority to enforce many of their directives, adding that they must rely largely on the force of public opinion and the spirit of coöperation of employers in applying and enforcing man-power ceilings and other phases of their program.

They do admit having a club—other federal agencies, such as O. P. A., O. D. T., W. P. B., etc.—which can be called upon to cut gasoline, fuel and tire rations, reduce or stop quotas of raw materials and apply other sanctions which could cripple or completely stop the operation of an industry which failed to coöperate with the W. M. C. program.

A close watch is being kept on the labor legislation which is now pending in the Congress. The May-Bailey bill passed in the House provides for a labor-draft program operated by the Selective Service System, but in the Senate efforts are being made to amend the bill to give the W. M. C. legal authority to carry out its program of staffing war plants by drawing man power from industries in the less essential category.

Regardless of what form the legislation takes, Allentown W. M. C. officials see their agency cast in a prominent role, but privately they appear to favor the substitute offered in the Senate. From Washington it has been reported that the Allentown Plan has been used extensively in arguing for legislation putting teeth into W. M. C. regulations and the bill now before the Senate appears to be based largely on the plan.

That the Allentown Plan is flexible is proved by the methods used in Newark, where 16,000 workers are sought from war industries. In the New Jersey area, instead of sending U. S. E. S. aides into the field for inventory work, the forms are mailed directly to the operators. When industries are selected for cutbacks they are notified of the number of persons from each category to be released and given one referral card for each worker. The cards, bearing the name, age, skill, wage rate and other information is given to the worker, together with a deadline for reporting to a specific U. S. E. S. office for referral. The release lists are mailed directly to the U. S. E. S. offices by the operators and checked against the workers as they apply.

Another innovation in Newark was the extension of the plan to women workers. George Pfaus, Newark area director, pointed out that 35 per cent. of the 16,000 workers to be transferred will be women. That phase of the plan also has been adopted in Trenton, although in Allentown and Harrisburg the program has been limited to men only.

Robison Joins Western Precipitation Staff

S. J. Robison

Sidney J. Robison recently retired from his position as chief engineer of the Universal Atlas Cement Company, after many pany after many He has now joined the staff of the Western Precipitation Corporation, and will make his headquarters in Chicago. Mr. Robison will devote his time to special problems relating to the adaptation of Cottrell electrical precipitators and the company's other dust-collectors in the heavy industries.

Mr. Robison's industrial experience dates back to 1903. His first work was in the chemical industry. He joined the United States Steel Corporation in 1906, and in 1907 was transferred to the newly formed Universal Portland Cement Company (now Universal Atlas). This was the same year that Western Precipitation built its first Cottrell electrical precipitation installation at Selby Smelter, near San Francisco, California. He became assistant chief engineer of Universal Atlas in 1919 and chief engineer in 1938.

The concentrating mill of the Tintic Standard Mining Co. near Milford, Utah, made its initial production of fluxing-gravel spar in June.

WASHINGTON NEWS LETTER

another P AND Q exclusive

DESPITE the official propaganda policy of pessimism, events on the war fronts during the past two months have centered attention once again on the problems to be faced after the capitulation of the main German armies. In both the political and economic spheres valuable use has been made of the six months which have elapsed since the last time this subject was "hot." The advantage of the further opportunity for more careful deliberation was reflected in the leading role taken by the President at the recent Crimea meeting, and in the plans announced at that conference for the occupation and control of Germany, imposition of reparations, assistance to liberated areas, and establishment of the world security organization. If the keynote of the conference was unequivocal unity, the main task of the participants was to steer a sage course between idealism and realism in terms of the broadest war aims of all—winning the war and winning the peace.

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PLANS for regulating the nation's economy during the transition period between the downfall of Germany and the defeat of Japan have also benefited from the additional time given to working out details. The O.W.M.R. under Mr. Byrnes has been the prime mover in this field, although its accomplishments thus far have been successfully kept out of the news. Mr. Byrnes has been content to give over the spotlight to numerous exhortations for compulsory labor service, and general blasts at the civilian population for a variety of alleged shortcomings. As pointed out on this page several months ago, the official V-E Day program at that time involved a sweeping removal of virtually all production and distribution controls in order to permit the most rapid resumption of civilian production. This approach had been actively urged by private industry, but it resulted in so much uncertainty and worry among business men as to encroachment on their civilian markets by old and new competitors that industry has become the strongest advocate of its repeal.

Considerable progress has since been made in evolving a sounder approach to the problem of industrial reconversion. The new plan, which has not yet been officially announced, differs from its predecessor principally in the degree of control to be exercised by the government. A combination of factors underlies this shift:

1. The wholesale relaxation of controls was admittedly a make-shift device, which was justified primarily on the expectation that the end of the European war was imminent. Its chief value lay in its simplicity. Actually, reconversion preparations at that time had hardly passed the preliminary stage, and no other plan was ready.

2. All indications were that the cut in munitions production would be very substantial, releasing a large volume of resources for less essential purposes. Present estimates of the armed services, on the other hand, show that production requirements for the Pacific war alone will not be much below the current output for a two-front war. There is reason to believe that this forecast may be highly unrealistic, reflecting the usual conservatism of the military agencies. Nevertheless, for V-E planning purposes, the official estimates are accepted at their face value.

3. If war production needs for the twelve months following V-E Day are almost as high as in the twelve months before, munitions output must be safeguarded through the maintenance and, if necessary, the extension of existing controls over production and distribution of required resources. The overriding position to be given to war production is revealed in a recent Byrnes directive to the war agencies which says in part: "In the planning and application of curtailments and terminations of war contracts, the paramount consideration at all times shall be the retention in war production, to such extent as may be necessary, of facilities with a proved capacity to produce known and contingent future requirements. Subject to this overriding objective, disruption of the national economy should be minimized to the greatest extent practicable by promoting maximum employment and equalization of the production load among all sections of the country."

4. Finally, if the increase in labor, materials, and facilities available for civilian production is small, it will be desirable to assure expansion of the most essential goods first. Again, this can not be done without appropriate controls.

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THE new plan would regulate reconversion on a plant-by-plant basis. All important terminations, curtailments or non-renewals of contracts would be subject to clearance by an inter-agency Production Readjustment Committee set up under the War Production Board. For each plant involved in a cut-back and not needed for further war work the committee would recommend the manufacture of one or more items from a list of approved essential products. Final authority on the resumption of civilian production by a released plant would be vested locally in the Area Production Urgency Committees, whose decisions are to hinge largely on considerations of interference with war-production schedules in each area. The actual machinery of the system will thus closely resemble the present "spot authorization" procedure.

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Because it represents a more orderly approach to reconversion problems, the new plan is expected to obviate many of the difficulties which would otherwise have developed. Also, the representation of the Army and Navy on the P.R.C. and on the local committees should serve to stem military fears of runaway civilian production. Even more important, in view of the uncertainty as to munitions needs after V-E Day, is the evident flexibility of the plan, the operation of which will be little affected by the extent of the reduction in arms output. In addition, continuation of allocation controls will strengthen the anti-inflation program now being developed by the O.P.A. for the reconversion period.

J. C. O'Connor & Sons Incorporated, Fort Wayne, Indiana, has purchased the stock of the Kickapoo Sand & Gravel Company of that city, according to an announcement made by W. F. Nattkemper.

James Miller, who has been connected with J. C. O'Connor & Sons Incorporated, for a number of years, has been appointed manager of the Kickapoo Company.

the VICTORY *Program*

. . . . . AND YOUR BUSINESS

CONCRETE PRICES IN MIDDLE WEST.—Ready-mixed-concrete manufacturers in Wisconsin, Illinois, Indiana, western Kentucky, North and South Dakota, Minnesota, Iowa and eastern Missouri may increase their present ceiling prices by the actual additional cost resulting to them from the recent increase granted to manufacturers of cement in that area, the Office of Price Administration announced January 30. This amendment, effective February 3, 1945, restores to producers of ready-mixed-concrete margins comparable to those realized before the increase in cement prices was granted on January 8, 1945. The adjustment in cement prices was not to exceed 20 cents a barrel. Since the actual increase will not be a uniform amount, ready-mixed-concrete producers have been permitted to add to their present ceilings the actual amount of increases resulting to them, rounded off to the nearest five cents per cubic yard.

Western Kentucky, as defined by this amendment, is that portion of the state west of, and including, the counties of Owen, Scott, Fayette, Madison, Rockcastle, Laurel and Whitley. Eastern Missouri is defined as that portion of the state east of, and including, the counties of Schuyler, Adair, Macon, Randolph, Boone, Cole, Miller, Pulaski, Laclede, Wright, Douglas and Ozark.

(Amendment No. 69 to Order A-1 under Maximum Price Regulation 188—Ready-Mixed-Concrete—effective February 3, 1945.)

CONSTRUCTION MACHINERY.—Twenty-five items of construction equipment, which formerly could be sold to purchasers other than war agencies only upon specific authorization by the War Production Board, may now be sold without this restriction, WPB announced January 18. Production and distribution controls over the types of construction equipment the major portion of which is needed by war agencies remain unchanged.

Order L-192[1] as amended January 17 transfers the twenty-five items of equipment from Schedule A to Schedule B. Schedule A items may be sold to war agencies without restrictions and to other purchasers only on specific WPB authorization, application for which must be made on Form WPB-1319 filed in WPB field offices. Schedule B items formerly could be sold only on purchase orders rated AA-5 or better. This rating requirement has been removed from the amended order.

Because of the limited supply, however, only essential needs for Schedule B items can be filled, and it will in general not be possible to purchase these items without preference ratings, WPB Construction Machinery Division officials said. (Application for ratings may be made to the prospective purchaser's nearest WPB field office on Form WPB-541.)

Other changes made in the amended order follow:

Certification and other restrictions on the sale of repair parts have been removed, since repair parts are now in relatively good supply, with the exception of engine parts. A special certification for purchase of engine repair parts required for emergency use is provided, however. This certification permits a purchaser to obtain preferential treatment for the purchase of engine parts needed for repair of equipment that has broken down.

[1] [Complete text published in PIT AND QUARRY, April, 1944, pages 6-62.—ED.]

Schedule D, which listed three items the manufacture of which was prohibited has been eliminated and these items are transferred to Schedule B. No production of these items is expected now.

The allocation of 75 per cent. of critical repair parts to the military, formerly applicable only to parts for Schedule A items, now applies to critical repair parts for both Schedule A and Schedule B items.

By a revision of the definition of "new equipment," equipment purchased from a Governmental disposal agency is no longer considered new, and is therefore not subject to provisions of Order L-192. (Sale of surplus equipment by a disposal agency is covered by Priorities Regulation 13—special sales.)

No increase in the production of construction machinery for civilian use will result from the current amendment to L-192, Division officials pointed out. Its chief effect is to simplify purchasing procedure.

The items of equipment transferred from Schedule A to Schedule B are:

Batchers, construction-material.
Batching plants, construction type.
Bins, construction-material, portable and stationary type.
Bulk-cement handling plants.
Distributors, bituminous.
Distributors, water (street sprinklers and flushers).
Draglines (slack-line).
Finishers, concrete-paving.
Hoists, contractors and material-handling exceeding 6,000 pounds line pull at 250 feet per minute line speed or exceeding 1,300,000 foot-pounds effort based on second wrap of cable.
Jacks, mud.
Logging arches, tractor-drawn.
Mixers, concrete-construction, above 7-cubic feet.
Mixers, concrete, truck or agitator type (with or without elevating towers).
Pavers, concrete.
Plants, soil-stabilizing.
Plows, snow (rotary and blower types).
Plows, snow (V and blade types) truck, grader or railroad mounted or mounted on tractors of more than 25 horsepower, including wings.
Pumps, concrete (except for well-cementing).
Pumps, portable engine or electric-motor driven units mounted on skids, with or without handles, or trailer-mounted larger than 90,000 gallons per hour; self-priming centrifugal pumps, horizontal or vertical triplex piston road pumps, ordinarily used for contractor's purposes or by contractors for dewatering and supply.
Scrapers, carrying and hauling, both drawn and self-propelled, under 2 cubic yards struck capacity.
Sprayers (maintenance units) bituminous material (over 300-gallon capacity).
Spreaders, concrete-paving.
Wagons, crawler, trailer (contractors, logging, cane, etc.).
Washing and screening plants, portable type.
Wheels, crawler trailer (complete assemblies).

Items formerly on Schedule D, transferred to Schedule B, are: fine graders and subgraders, drawn type; joint levelers; and scrapers, drag, fresno, rotary over 27-cubic feet (or 1-cubic yard) capacity except those scheduled under Order L-257 or L-257-a (farm machinery.)

PHOSPHATE ROCK PRICES.—A price increase of 10 cents a ton, at the miners' level, for Tennessee phosphate rock, essential in making fertilizer and chemicals required for the production of food and munitions, was announced February 13 by the Office of Price Administration. This action, effective February 17, 1945, will make no change in retail prices. Manufacturers of fertilizers and chemicals, purchasing Tennessee phosphate rock, will absorb the miners' price increase. Furthermore, distributors who buy the finely-ground phosphate rock from the mining companies will absorb the price increase and continue selling it to farmers at present prices. This price increase is the estimated cost of an increase in wages recently granted four companies engaged in mining and processing Tennessee phosphate rock by the Fourth Regional War Labor Board with the approval of the Director of Economic Stabilization. These four companies sell virtually all the Tennessee phosphate rock.

(Amendment No. 1 to Revised Maximum Price Regulation 240—Phosphate Rock—effective February 17, 1945.)

WALL BOARD PRICES.—Producers in eight specified states may add actual transportation charges to their f.o.b. plant ceiling prices for gypsum wall board, lath, sheathing and laminated gypsum products sold to government agencies and delivered to eastern ports for export, the Office of Price Administration announced February 12.

The eight states to which the new amendment (effective February 15, 1945), applies are: Indiana, Iowa, Michigan, Ohio, New York, Massachusetts, Pennsylvania and Virginia.

Gypsum products for export are normally sold by plants situated in eastern metropolitan centers on a delivered price basis. This price is derived from the f.o.b. plant price at the nearest metropolitan mill plus an average trucking or shipping charge within the delivered area.

The new action is necessary to increase the quantity of the products available for export, to England and France for rehabilitation purposes. The eastern metropolitan plants, with reduced output due to the inability to obtain crude gypsum supplies in that area, are unable to meet present requirements for United States foreign shipments.

Inland plants have ample facilities and capacity for production to meet domestic demands for the products, in addition to supplementing supplies for export, the O.P.A. said.

(Amendment 70 to Order A-1 Under Maximum Price Regulation 188—Manufacturers' Maximum Prices for Specified Building Materials and Consumers' Goods Other Than Apparel—effective February 15, 1945.)

The Consolidated Feldspar Corporation, Kona, North Carolina, whose new flotation plant was nearing completion at the end of the year, will treat alaskite rock—a quartz-feldspar pegmatite too fine-grained for hand sorting. Pilot-plant work at Erwin, Tennessee, proved that a clean feldspar low in free silica could be obtained; and the plant consolidated will have an eventual capacity of 750, with quartz and mica the by-product.

Rich in History and Associations

San Antonio Portland Pioneer Cement Firm Second Oldest in U. S.

The original kiln and several small buildings used by the Alamo Portland and Roman Cement Company.

Charles Baumberger, Sr., still directs the company of which he became president almost 50 years ago.

THE first Portland cement plant developed west of the Mississippi River and the second such plant to be built in the United States, was the indirect result of a casual hunting expedition sometime in the year 1879, in the northern corporation limits of the city of San Antonio, Texas. The hunter, an Englishman named William Loyd, in his ramblings stumbled into the rock quarries belonging to the city of San Antonio, and instead of breaking his neck (as he might well have done), he set in motion a sequence of events that culminated in the formation of a great new industry destined to play a vitally important role in the development of the Southwest.

William Loyd had had some experience in the cement industry in his native country, and his sharp eyes found a strong resemblance between the cement rock with which he was familiar and the blue argillaceous limestone at the bottom of the city quarries. He took samples of the rock to George H. Kalteyer, a San Antonio druggist, who had assisted the great German chemist, Dr. Frisenius in an investigation of cements for the German government

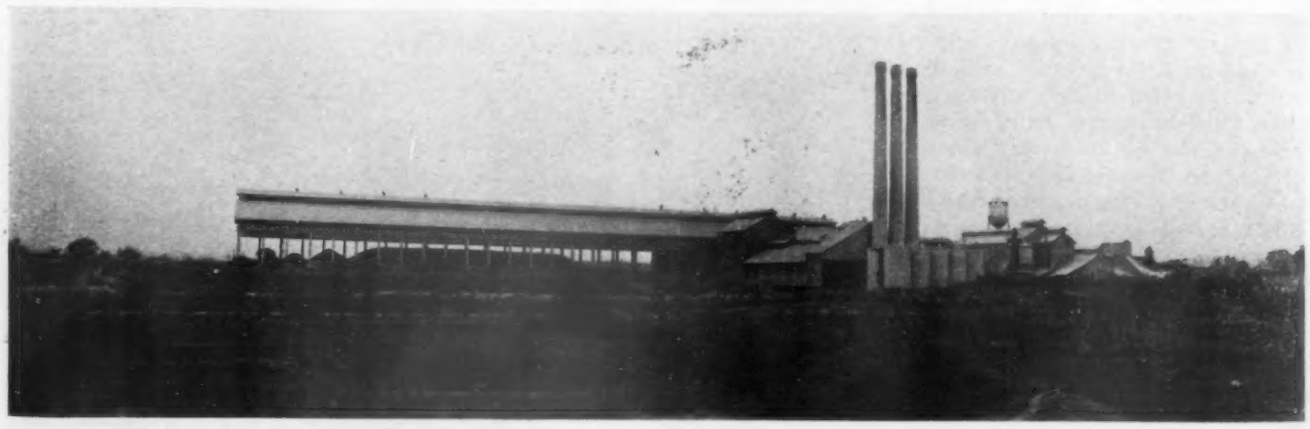
By WILLIAM M. AVERY

in the late 60's. Mr. Kalteyer performed an analysis and advised Loyd that the stone was a natural cement rock containing about the correct proportions of lime and clay to make a true Portland Cement.

Mr. Loyd then interested W. R. Freeman, a hydraulic engineer well known in Texas at that time, in making sample burns from the rock but neither of the men had sufficient means to finance a prolonged investigation, so they appealed to Mr. Kalteyer to come to their assistance both financially and technically. This pooling of resources resulted in the formation of the "Alamo Portland and Roman Cement Company," incorporated under the laws of Texas in January, 1880, with a capital stock of $3,100.00, divided into 124 shares with a par value of $25.00 each. Mr. Kalteyer was elected president and Mr. Loyd superintendent of the new company, and work was soon started on the construction of an intermittent pot kiln at the quarry site.

Mr. Kalteyer's principal business interest at this time was the San Antonio drug firm of F. Kalteyer and Son, and in a roundabout sort of way this connection was destined to have a profound influence on the future of the new cement company. The drug firm's bookkeeper was an ambitious youngster of 17 named Charles Baumberger who agreed to take on the books of the Alamo Roman and Portland Cement Company for an increased remuneration of $10 per month. Thus, casually, began an association that has endured for 65 years and to which must be attributed in a large measure the ultimate success and phenomenal growth of the business enterprise which started so inauspiciously on January 15, 1880.

The modern successor to plant pictured above is located 5 miles north of San Antonio, produces 1,500,000 barrels of cement annually.



The first plant consisted of some small wooden buildings, the pot kiln, a small Blake jaw crusher, one pair of rolls and a small vertical French burr mill. The power to drive the mill was supplied by a small slide-valve steam engine, the fly-wheel of which had wooden spokes and a cast-iron rim. The mill was capable of grinding 10 barrels per day, and

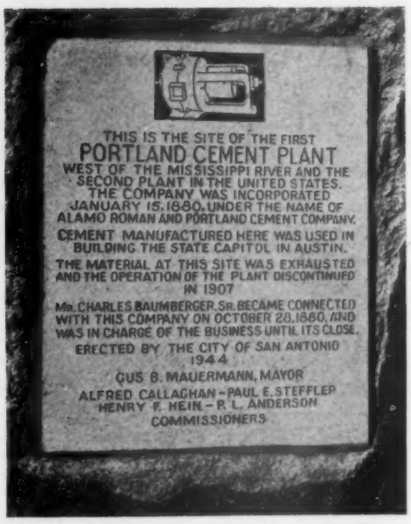
One of the bear pits built against the old quarry face in Brackenridge Park.

as there was no American standard at that time, the European practice was followed of grinding to a fineness of 10 per cent. residue on a number 50 cloth.

The mill building was a three-story affair, the upper two floors of which were used for seasoning the cement. This was accomplished by spreading the material in layers varying from 6 to 9 inches in thickness, and aerating the cement by turning over the layers with shovels about once a week. The cold-water test was made at frequent intervals to determine the soundness, and when the cement passed this test it was stored in wooden bins on the ground-floor level.

The heavy deposit of overburden at the quarry was a limestone containing from 10 to 15 per cent. clay which produced, upon burning, an excellent hydraulic lime. The young company helped eke out a precarious existence in these early days by engaging in the lime business and in the sale of building stone including curbing and dimension stone. Indeed, the lime and building-stone business for a time overshadowed the cement business, and clinker was produced only occasionally when the kiln was not being used for burning lime.

Despite handicaps and occasional setbacks the cement business grew and in 1881 the capital stock of the company was increased to $10,000 and the name changed to "Alamo Cement Company." Although the production of cement had soared to the fabulous figure of 1,000 barrels per year, it was difficult to market the product and people generally looked upon the material with suspicion. For example, one of the very early orders came from a citizen of Kerrville, Texas, who, receiving the cement put up in the bags of the Alamo Portland Cement Company, wrote the company a scorching letter. In substance he announced that he didn't want any alleged Portland made in San Antonio,


THIS IS THE SITE OF THE FIRST
PORTLAND CEMENT PLANT
WEST OF THE MISSISSIPPI RIVER AND THE SECOND PLANT IN THE UNITED STATES.
THE COMPANY WAS INCORPORATED JANUARY 15, 1880, UNDER THE NAME OF ALAMO ROMAN AND PORTLAND CEMENT COMPANY.
CEMENT MANUFACTURED HERE WAS USED IN BUILDING THE STATE CAPITOL IN AUSTIN.
THE MATERIAL AT THIS SITE WAS EXHAUSTED AND THE OPERATION OF THE PLANT DISCONTINUED IN 1907
MR. CHARLES BAUMBERGER, SR. BECAME CONNECTED WITH THIS COMPANY ON OCTOBER 20, 1880, AND WAS IN CHARGE OF THE BUSINESS UNTIL ITS CLOSE.
ERECTED BY THE CITY OF SAN ANTONIO
1944
GUS. B. MAUERMANN, MAYOR
ALFRED CALLAGHAN - PAUL E. STEFFLER
HENRY F. HEIN - R. L. ANDERSON
COMMISSIONERS

Stone tablet in the recently dedicated Baumberger Plaza, overlooking the original plant.

Texas, but the "genuine article" from Portland, Maine!

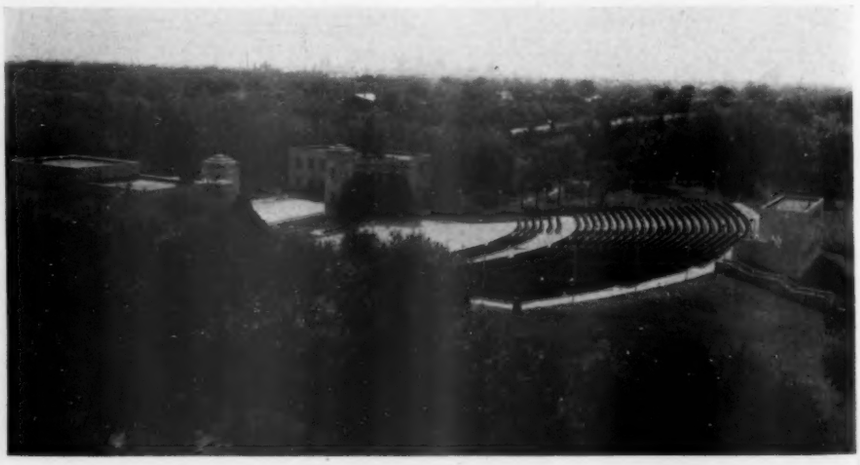
With a view to overcoming public distrust and to create a market for its production, the company for a time engaged in the sidewalk construction business. For $1,000 it purchased the Texas rights to what was known as the Schillinger patent, covering the already fairly common practice of laying sidewalks in sections in order to provide for expansion and contraction.[1] Sidewalk builders who used Alamo Portland cement were charged a royalty of two cents per square foot, but any rebels who persisted in using "foreign cement" (*i.e.*, other than Alamo) were required to pay a royalty of five cents per square foot. By this means even the most confirmed skeptics were eventually induced to try the local cement.

Of course there were mishaps. With the inaccurate method of determining soundness it was inevitable that now and then "green" cement would be sent to a job. Then, from three to five days after the sidewalk had been laid, it would suddenly begin to bulge and swell as the free lime expanded, and the cement company would send its men out in the dead of night to tear out the work as unobtrusively as possible. New walks were covered with planks for protection, and the concrete was watered twice a day to promote curing. By lifting the boards one at a time it was possible to check on the quality of the pavement without everybody else seeing it.

A long step forward was made in the struggle for general public acceptance of the new cement when, in 1881, the company induced General Q. A. Gillmore, at that time a colonel of engineers in the U. S. Army and a noted authority on hydraulic cements, to make tests of its product. A flare for promotional showmanship was evidenced by the precautions taken to guard against any possible later claim that the samples had been selected, for persons no less than the mayor and the city engineer of San Antonio were prevailed upon to gather the random samples and forward them under seal to Colonel Gillmore. The company still has in its files Colonel Gillmore's reply written in longhand, pro-

[1]The validity of the Schillinger patent, which expired in 1887, was repeatedly sustained in the federal courts.

An open-air theater occupies a part of the old quarry floor in Brackenridge Park.



This view in the San Antonio Zoological Gardens shows how the cages have been built against the original quarry face.

Many of the animal pits are without barriers. Dry moats between the walkways and the pits keep both audience and performers from subverting the meat rationing program.

"Monkey Island" is located on the open floor of the original quarry. Here again a dry moat discourages fraternizing between visitors and inmates.

nouncing its Portland cement to be the peer of any.

The demand for Alamo Portland cement had increased to such an extent by 1889 that the company decided to make some needed improvements in the plant. An upright shaft kiln of the Schaefer type was built and the raw material, after being ground on French burrs, was mixed with water in a pug mill and formed into bricks for charging the kiln. This method of operation, which was maintained until about 1897, produced an average of 50 barrels per day with good fuel economy. By this time the leading cement plants in this country had adopted the rotary kiln, and in the absence of oil (which was not discovered in Texas until 1901) the company conceived the idea of installing a rotary kiln and using powdered coal for fuel. Mr. Kalteyer, on a visit to Germany, investigated the De Camp patent for the burning of powdered coal under boilers. Stricken with a serious illness while in Europe, Mr. Kalteyer died under surgery shortly after his return to the United States, but he was able to impart his findings to Charles Baumberger, then manager and secretary of the company. Mr. Baumberger immediately arranged for the purchase of a 50-foot rotary kiln, and the plant operated successfully on powdered coal until 1901, when oil was adopted.

There were certain disadvantages inherent in the location of the plant, and these became increasingly apparent as the business grew and prospered. The quarries were operated on a lease arrangement with the city of San Antonio, and inevitably the company found itself on the line of fire whenever one political faction attempted to seize control from another. Another serious problem was transportation. The plant was three miles from the railroad and all the fuel had to be hauled in and the finished product hauled back to the city. By 1908 the soaring demand for cement exceeded the productive capacity of the mill, and the decision was made to abandon the city quarry site for a new location five miles north of San Antonio, and to build there a plant of larger capacity. At the same time the business was again reorganized under the name of the San Antonio Portland Cement Company. The new site and the community that grew up with the plant, soon became known as Cementville. Today it is the theater of operations for one of San Antonio's largest industries, with an annual

capacity of over 1,500,000 barrels of cement.

The scene of the company's early operations is to-day known as Brackenridge Park, San Antonio's largest outdoor recreational center, a considerable portion of which was donated to the city in 1899 by George W. Brackenridge, president of the water company. In the approximate center of the park is the San Antonio Zoological Garden, where a part of the abandoned rock quarry has been utilized in the development of an African panorama with natural pits, many constructed without bars for the animals. Many of the open pits are built against the original quarry face, with deep dry moats in front of the walkways to discourage both the spectators and the inmates from attempting to subvert the meat-rationing program.

One of the most beautiful sights in San Antonio is the Chinese Garden on the northwest edge of the park, where again the designers fully utilized the contours of the quarry. Here in one of the deepest portions of the quarry, is an irregularly-shaped lily pond about 400 feet long by 300 feet wide separated by an island into two levels connected by small waterfalls. The floor of the quarry pit had been left on an incline which was found to provide perfect natural drainage for the pools, and there was sufficient earth and *débris* present for the construction of the island.

On the north and east sides of the pool the quarry face rises vertically to a height of nearly 80 feet. A quaint Chinese tea garden is perched on the very edge of the cliff overlooking the lily pond. On the west and south the cliffs rise only 15 or 20 feet and are covered by mesquite trees and cacti and traversed by foot paths.

One of the most beautiful sights in San Antonio is the Chinese Garden on the northwest edge of Brackenridge Park. Here again designers utilized contours of the quarry.

The original kiln and several small buildings erected by the Alamo Portland and Roman Cement Company have fortunately been preserved and they constitute one of the most interesting sights in the park. The structures face an open parkway which the city of San Antonio in a recent ceremony designated as Baumberger Plaza in honor of the man whose vigorous leadership has contributed so much to the growth and development of the community.

Charles Baumberger, Sr., now in his eighty-third year, still directs the company of which he became president almost 50 years ago. He first became identified with the original Alamo Portland and Roman Cement Company in October, 1880, shortly after its incorporation. He served initially as bookkeeper in the company's first offices located at Kalteyer's drug store in downtown San Antonio. In 1884 he became manager and in 1890 he assumed the additional duties of secretary. Upon the death of Mr. Kalteyer in 1897 Mr. Baumberger became president, and in this capacity he has personally directed and supervised the company's growth from a relatively small business to the great industry which he still actively guides to-day.

As few men have been privileged to do, Mr. Baumberger has played an intimate and important part in the growth of the Portland-cement industry in the United States. Still alert and vigorous, he visits his offices six days a week and takes a keen interest in his company's current problems. There is a gay twinkle in his eyes when he talks about the early days of the industry, and the gymnastics he and his associates performed when a sidewalk paving job went awry. To-day he enjoys the well-earned rewards of the pioneer: rich memories and the high esteem of his fellow men.

Another view of the Chinese Garden, showing the tea house perched on the edge of the cliff. The old kiln and the sky-line of San Antonio are visible in the background.

According to the Department of Agriculture, six companies are now producing rock phosphate which is suitable for use as stock feed. Before the war rock phosphate was not considered satisfactory as a raw material because of the high fluorine content, but newly developed methods have made it possible to produce calcium phosphate virtually free from fluorine. The annual production of feed phosphate from rock amounts to about 100,000 tons.

The only known formation in the United States of nepheline syenite rock, becoming increasingly important in the making of glass, has been found near Wausau, Wisconsin. Investigation of the deposit is being conducted by Ernest F. Bean, state geologist, who says that if sufficient quantities of the material are found, it will be produced on a commercial basis.

CRUSHED-STONE PRODUCERS DISCUSS POST-WAR PROBLEMS AND PROSPECTS

• Left to right: Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wis.; Mrs. Gale Patterson, Patterson's Quarry, St. Charles, Minn.; E. E. Haapala, Zumbrota, Minn.; E. Nielsen, Hector, Minn.; Mrs. and Mr. E. J. Leary, River Falls, Wis.

another ON THE SPOT report

THE twenty-eighth annual convention of the National Crushed Stone Association was held at the Hotel New York, New York City, January 29, 30 and 31, as originally planned. Consideration had been given by the association's executive committee to the request issued by James F. Byrnes, director of the Office of War Mobilization and Reconversion, on January 5, asking that all conventions scheduled for February 1, 1945, or later be cancelled in the interest of curtailing nonessential civilian travel, but it was decided that, inasmuch as the convention would be completed before the effective date of the O. W. M. R. request, the meeting could be held with propriety. Accordingly there was no change in plans and more than 360 members, associate members and guests registered as in attendance.

The Monday morning session was opened by President Fred O. Earnshaw who presented a report on business conditions in the crushed-stone industry last year, as observed by the association's regional vice-presidents.

For the southeastern division Regional Vice-President W. T. Ragland of Raleigh, North Carolina, reported that the volume of crushed-stone production in 1944 was somewhat less than that of 1943 and was distributed roughly 35 per cent. to highway construction and maintenance, 20 per cent. to railroad ballasting, and 15 per cent. to building construction. There was very little change in the price level. The outlook for 1945 is uncertain but it is thought that the total output in the area may continue to decline slowly. Truck transportation has been a problem, but railroad deliveries have been well handled.

W. F. Wise, Dallas, Texas, regional vice-president in the southwestern area, reported a 30-per cent. drop in production in 1944 as compared with 1943, 39 per cent. of the output going into highway construction, 37 per cent. into railroad ballasting, and 10 per cent. into other uses. The prospects for a large demand for materials from railroads, highway departments and farmers for soil conservation are favorable. The output this year is more likely to be adversely affected by a shortage of labor than by any other factor. Transportation facilities during 1944 were good and the outlook for 1945 is also good.

The volume of crushed-stone production in the northern area compared favorably with that of 1943, according to A. J. Cayia of Manistique, Michigan. From 60 to 75 per cent. of the industry's production capacity was utilized. Of the area's total output, 60 per cent. was produced for the chemical and metallurgical industries, 20 per cent. for railroad ballasting, 5 per cent. for building construction, and the remainder for other uses. Unless conditions change materially, the prospects for 1945 appear to be as good as were those for 1944.

In New England, as reported by T. C. Cooke of Swampscott, Massachusetts, at least one producer experienced an increase in business as compared with 1943, the rise having been no less than 43 per cent. A neighboring producer's business declined 75 per cent. Prices were about the same as in 1943. Some producers' entire output went into highway construction, while with others the percentage was as little as 5, the average being approximately 35 per cent. Railroad ballasting took about the same average percentage of the industry's output, although with one producer the percentage of material going into this use reached 47 per cent. The percentage going into building construction ranged from 14 per cent. down, the average being about 5 per cent. Other uses took 90 per cent. of one producer's product, but the average of all was about 25 per cent. It is expected that the total output in 1945 will about equal that of 1944. There was some difficulty in obtaining trucks for delivery and this is expected to increase this year. The supply of railroad cars has been ample. There has been an acute shortage of man power and this is expected to become critical.

From Morristown, New Jersey, F. W. Schmidt, Jr. reported for the eastern division a small decline in business in 1944 as compared with 1943, with price levels fairly stationary. In general the demand was much below the industry's capacity, except in the cases of agricultural and chemical stone. The outlook for 1945 is poor and a decrease in output is expected. The acute shortage

of man power is expected to become worse.

In the central area, according to W. C. Sparks of Princeton, Kentucky, the volume of production in 1944 varied from 25 per cent. less than that of 1943 to slightly higher than in the preceding year, prices remaining about the same as in 1943. There was no material change in the distribution of the area's output among different uses. There were ample railroad cars but a shortage of trucks prevailed. The shortage of man power continued and the outlook for 1945 is gloomy. Although the demand for chemical, metallurgical and agricultural stone is expected to continue at high levels, the total production is expected to decline below the 1944 level.

Paul M. Nauman of Dubuque, Iowa, reporting for the midwestern area, told of decreases of from 10 to 30 per cent. in the production of crushed stone, although with some producers the demand was no less than that in 1943. Man power continues to be a serious problem. Trucks and truck tires are very scarce, but no difficulties have been encountered in shipping by railway. Of the total 1944 output, 25 per cent. went into highway construction, 20 per cent. into railroad ballasting, 5 per cent. into building construction, the same percentage in the chemical and metallurgical industries, 20 per cent. into agriculture, and the remainder into other uses. As soon as the European phase of the war is ended, there will be a large demand for crushed stone in this area.

Engineering Director A. T. Goldbeck presented his report on the engineering activities of the association during the past year. Laboratory research dealt with a number of projects which he described in some detail. The durability of concrete made with limestone sand; the design of airport pavements for supporting the Super-Fortress type of bomber as compared with the Flying Fortress; the suitability of the Los Angeles abrasion machine tests when applied to large-size stone such as that used for railroad ballast; the effect of air-entraining cements on the workability, compressive and beam strengths of gravel and stone concretes; and the weight per cubic foot, dry and rodded, of stone use in proportioning concrete by the National Crushed Stone Association method were some of the projects he discussed briefly.

• Machinist's Mate First Class C. A. Sanborn, U. S. N., on leave of absence from the Lehigh Stone Company, Kankakee, Ill.

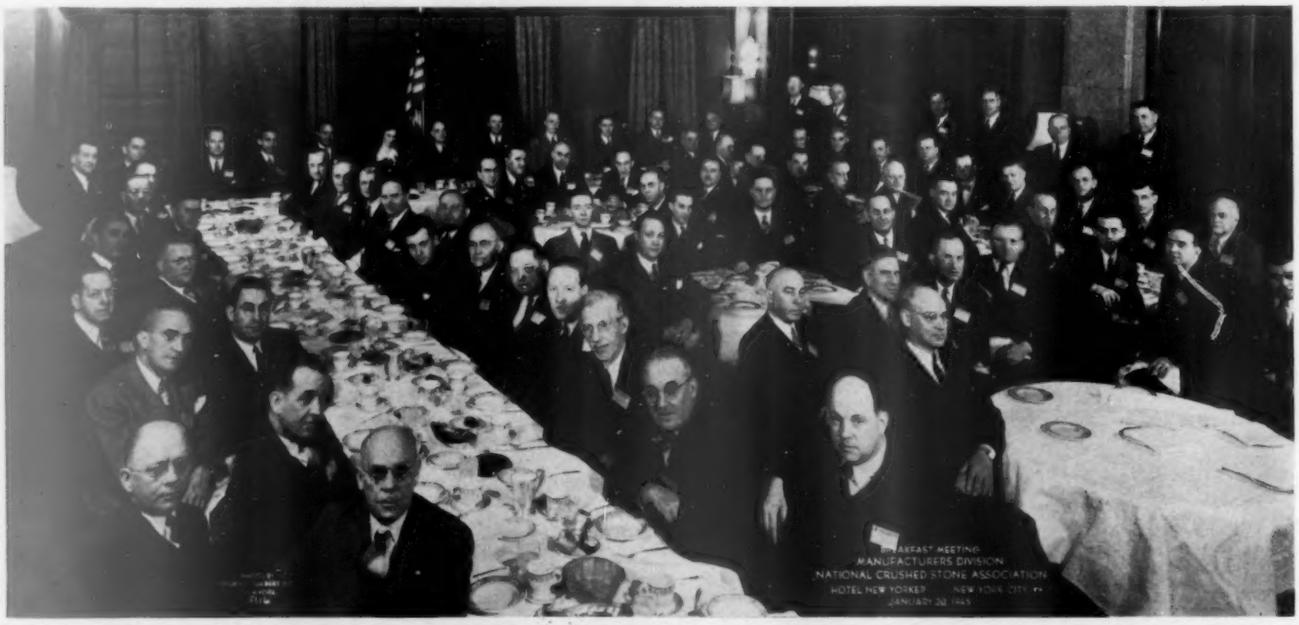
A number of projects were carried on for member companies, dealing with such matters as state specifications affecting the use of stone and slag; the stress analysis of concrete runway slabs in airports; concrete proportioning methods that are workable in the field; defects in the bituminous-concrete surface of two airports.

Mr. Goldbeck named some twenty-odd technical committees and other groups in whose work the association is participating, and referred to the Short Course for Salesmen that was held in Washington just prior to the last annual convention and to the requests from members that it be repeated elsewhere.

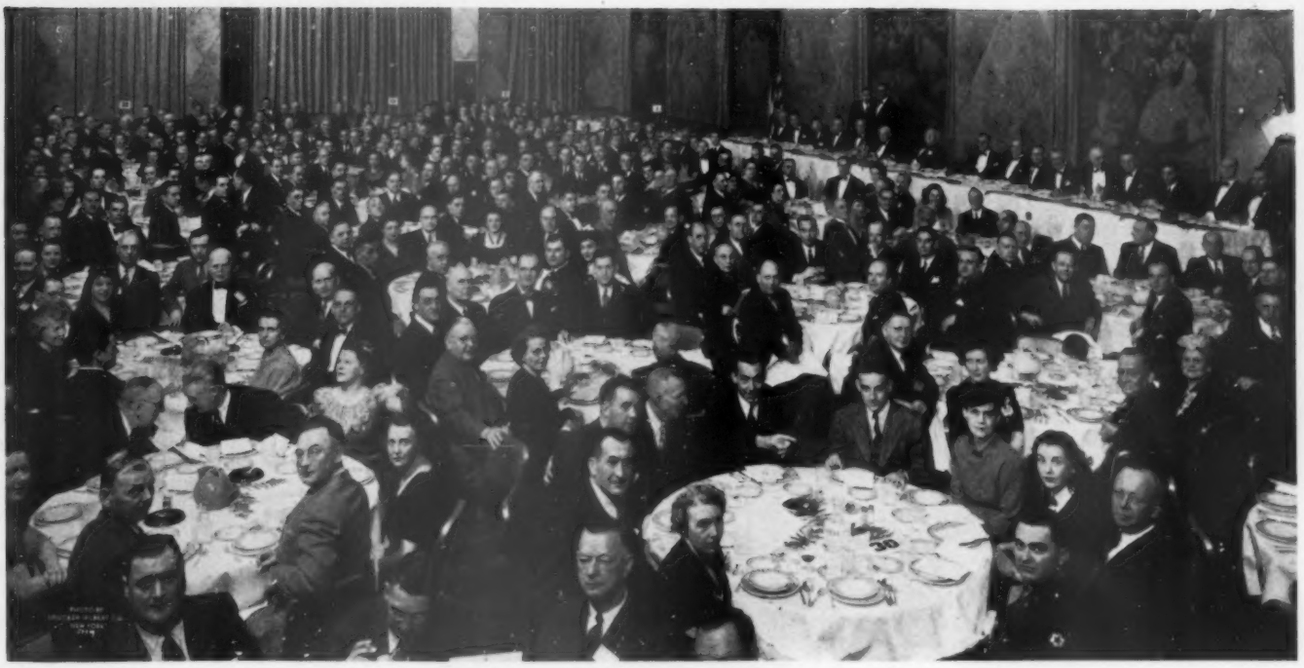
Field Engineer Edward W. Bauman reviewed his work during 1944 and made a plea for coöperation on the part of members in notifying him of meetings that may be of interest, contacts with government agencies regarding construction specifications and seeking proper recognition of the qualities of crushed stone. His work during the year led to his making field trips to the plants of member companies in all but two of the association's producing areas.

J. R. Boyd, the association's administrative director, in reporting on the activities of his division, discussed a number of the problems that have vexed producers and told of the association's accomplishments in matters of deep concern to its members.

Lieutenant Colonel Timothy A. McInerny of the Speakers' Branch, Bureau of Public Relations, War Department, brought his listeners up in their seats when he quoted the opinions of military authorities on the question of how long the war will last, for he drew a picture that is much more pessimistic than most people were prepared to accept. He said that our only fear should be that we may not be doing enough for America or for our armed forces,



• Annual breakfast meeting of the Manufacturers' Division of the National Crushed Stone Association.



• The annual banquet of the National Crushed Stone Association drew its usual crowd.

and that we must prepare ourselves to make greater sacrifices than we have yet faced. On the western front, he said, our forces are experiencing the worst winter in 40 years, yet they have fought well and we at home have produced well. But overshadowing the facts or war is a mighty movement of political forces.

The losses of materials in this war have mounted so rapidly that no one talks any more about the miracle of production, yet we must produce even more. He told, also, of the Von Rundstedt attack and its chief objective — the capture of Antwerp — which was not achieved. Secondary objectives, such as upsetting our time schedule for the final assault, were, however, temporarily achieved. He described how the break-through had been accomplished by movements of small groups at night to previously prepared wooded areas. In all our contacts with the enemy, he said, the Germans are never found to be lacking anything they need—men, ammunition, supplies.

For such reasons, he added, American civilian optimism is appalling in its ignorance of the facts and in its blind hopefulness as to the final outcome. Germany has not yet been beaten and to think that the Von Rundstedt attack is the last that will be made is stupid optimism.

We have tremendous advantages over the enemy in the European theater compared with the situation in Asia, he said. He told, for example, how preparations for the attack on the European continent were made and aided by the presence in the British Isles of an ally, who had everything in readiness for the arrival of our forces, who of their 33,000,000 people between the ages of 16 and 60 years had 22,000,000 men and women working in the armed forces, in the ports, in airports and other services, who at one time had 5,000 night fighters stretching from Dover to Cornwall to protect American stores of ammunition and supplies.

The actual invasion of the continent was but 70 miles distant from this friendly base, not 3,000 miles; not from America but from England, where there was provided the best invasion base ever prepared. The speaker called this "riding on plush" compared to what we will meet in Asia. Although Japan has been losing men at the rate of 100,000 a year for three years or a total of 300,000, in the same time 1,500,000 male Japanese have arrived at military age. To change this ratio will require more ships, more men, more ammunition, and more bonds. D day in China will call for a huge effort for we are facing a dangerous, desperate and patriotic foe. The defeat of the Japanese in China may take four years longer than the destruction of the German military forces, because of the small number of ports on the China coast, the limited dock facilities available, the fact that the Japanese forces can live for years on the resources of the occupied parts of China, and the stupendous difficulties involved in landing on China's shores the supplies, armor and ammunition that will be needed to support the 250,000 men that will constitute the minimum force required to make a successful attack against the Asiatic stronghold.

At the lunch which followed two motion pictures were shown: *Earthmovers,* a War Department official release, and *The Life and Death of the Hornet,* taken and made available by the Navy Department. *What the Seabees Are Doing for You* was the title but not exactly the subject of an interesting talk by C. A. Sanborn, Machinist's Mate First Class, United States Navy. Before joining the Navy he was engaged with his father, William R. Sanborn, and his brother, Dan Sanborn (a member of the association's board of directors) in the management of the Lehigh Stone Company, Kankakee, Illinois. He was a member of the crusher crew of the 14th U. S. Navy Construction Battalion, composed of working-fighting Seabee veterans of Guadalcanal and winners of the Presidential Citation. He was a part of that outfit when they were in action on Guadalcanal in 1943, crushing rock to maintain an airfield. Now he is teaching other Seabees the mysteries and fine points of operating and maintaining crushing equipment for overseas activities, and he gave his listeners a verbal picture of how this information is imparted to the students enrolled.

There are 12 men in the class in quarry crushing and they have two 10- by 24-inch jaw crushers, one set up inside the school building and one set up outside. The indoor machine is taken apart and reassembled repeatedly until every man is thoroughly familiar with its construction, maintenance and repair. The outdoor machine is used in giving instruction in operating practices. Each student is given a new job each

day. Booklets issued by the crusher manufacturers are carefully studied by the men, so that they can understand all the features of design that contribute toward efficient operation. Lubrication and the use of grease guns are, of course, among the subjects given attention. The men are lectured on the subject of safety and so far there has been but one lost-time accident. Through his instruction each man learns how to operate, repair, take down, set up, crate and uncrate a complete plant. One day each week the men load trucks by hand, using machines on the other days. The men are also instructed in the qualities of three kinds of coral which they may be expected to encounter in their operations outside the United States. The class is taken to observe the operations of a local gravel plant and to watch the packing of various types of equipment at a naval supply depot, but approximately 90 per cent. of their time is spent on jaw crushers.

The school trains 22,500 students a year and has already trained nearly 50,000 men who can fit into the quarry business after the war. There are 535 instructors and 736 students are enrolled each week.

The Monday afternoon session was presided over by J. A. Rigg (Acme Limestone Corporation, Fort Spring, West Virginia). The first paper, on the *Postwar Construction Program,* was presented by Major General Philip B. Fleming, Administrator, Federal Works Agency, Washington, who pointed out that only half the amount which probably will be needed to assure a high level of national prosperity is available in the $2,500,000,000 worth of public construction now in sight for the first post-war year. The government, he said, should point the way for private building construction by getting its contracts under way as soon as the war ends. Public works, said General Fleming, should start first in places where private construction is slow in getting started and should never compete with it for local materials and labor. The governmental program should be spread out and timed to support private construction and should be a stabilizing influence. Jobs, he said, have been stressed in most discussions of post-war public works but they carry their own justification. The real question is not what work can be done but what we can afford to leave undone for the benefit of everyone.

• Left to right: Dale W. Detwiler, P. C. Kensinger, and Paul I. Detwiler, all of the New Enterprise Stone & Lime Co., New Enterprise, Pa.

The next speaker, William A. M. Burden, Assistant Secretary of Commerce, Washington, described *A National Program for Airport Construction.* Airport construction, he said, is no longer a by-product of work relief or national defense and must now stand on its own merits. No federal aid is now available for airport construction and any future aid will depend on Congressional action.

According to Mr. Burden the pasenger air traffic is now about 15 per cent. of Pullman traffic and it will grow even more rapidly as more planes become available and fares are reduced. There are now, he said, 25,000 civil airplanes in this country and this number will grow after the war as planes are improved, more airports are available, and restrictions are relaxed. Within ten years after the war a total of nearly 400,000 planes is possible.

Mr. Burden then quoted a report prepared by the Civil Aeronautics Administration for the House of Representatives on the need for airports in post-war aviation. The C.A.A., he said, proposes a program calling for the construction of about 3,000 new airports and the improvement of about 1,600 of the 3,000 existing airports. The cost of such a program is estimated at $1,000,000,000 exclusive of land and airport terminal buildings. An additional $250,000,000 would be needed to acquire the necessary land and to build terminals. Such a program could be spread over a 5- to 10-year period with the federal, state and local governments sharing the costs. The first requirement, he said, is $3,000,000 for the necessary plans and surveys. The investment of $25,000,000,000 in roads during the last 25 years had made this a nation on wheels with 32,000,000 mo-

• Left to right: John Rice, Sr., General Crushed Stone Co.; Wilson P. Foss, Jr., New York Trap Rock Corp.; Irving Warner, Warner Co.; Harold Williams, General Crushed Stone Co.

• Left to right: C. H. Bussman, Pit and Quarry; Alfred S. Otton and Edward Conover, Robins Conveyors Incorporated; W. A. Wilson, Pit and Quarry.

tor vehicles in operation during normal times. The investment of a much smaller sum, according to Mr. Burden, can start the United States on its way to becoming a nation on wings with all that implies in war and peace.

When the war is over, said Mr. Burden, there will be an excess of pilots and plane-manufacturing plants. There will be about 350,000 army and navy pilots and 150,000 civilian pilots as well as about 2,500,000 men trained by the armed forces in other aviation skills and an almost equal number of men and women employed in our aviation factories. Only a fraction of these plants, workers and fliers can be used after the war even if flying multiplies but each of these nearly 6,000,000 persons must be considered a potential flyer. Many other millions, he said, are potential airline travelers. This tremendous growth of the use of air travel will require the construction of airports near towns which now do not have them, near the National Parks and other recreational areas. Towns and cities wanting to attract industries, he said, will have to provide modern airports.

The greatest lack of airports is now in towns of 25,000 or less, said Mr. Burden, but even the larger cities have only one airport for every 440,000 people. The congestion has become so severe that most of the larger airports no longer allow private planes to land. The growing size of planes also makes many existing runways obsolete.

E. W. Bauman, field engineer of the association, then read a paper which briefly discussed War Production Board Controls in 1945. Order No. P-56, he said, was amended several times in 1944 but none of these involved any basic charges. The supply of trucks for industry will be lower in 1945 because of increased war demands, said Mr. Bauman, and when Form 663 is used for such applications it should be accompanied by the recommendations of the regional mining and O.D.T. representatives in order to obtain prompt action. In 1944, he said, most of the applications for off-the-highway trucks were granted but with the growing shortage essentiality will probably be the governing factor. Tires are also harder to get and producers are urged to take the best possible care of those they have. Power shovels and tractors are also on the scarce list. The producers of stone for iron and steel manufacture and of foundry sand now hold top priorities, practically all other nonmetallic mineral producers are in Group 3.

The Tuesday morning session was devoted almost exclusively to alleged damages from blasting. *The Legal Aspects of Defending Suits for Alleged Damage from Blasting* were dealt with by Harold Williams of Boston, attorney for the General Crushed Stone Company. He discussed the various defenses that are available to one who has been sued for damage allegedly due to blasting, and emphasized the importance of one of these, namely, the demonstration of what actually did cause the damage—such as settlement, shrinkage of materials, etc. with results that can easily be recognized by trained observers. He expressed the opinion that these matters are of an importance that fully justifies quarry operators in preparing themselves.

• E. Lee Heidenreich, Jr., consulting engineer, Newburgh, N. Y.; and Jules E. Jenkins, Vibration Measurement Engineers, Chicago.

J. D. Fackenthal, executive vice-president and counsel of the New York Trap Rock Corporation, New York, discussed *The Negligence Factor.* The speaker was one of the attorneys representing that company in the case of *Dixon v. New York Trap Rock Corporation,* which was based on a claim for injuries allegedly resulting from blasting carried on in that company's quarry. The findings of the lower court in favor of the plaintiff were affirmed on appeal, thus supporting the claim that Mrs. Dixon, as well as her husband, was injured as the result of the company's blasting.

The speaker pointed out four factors in cases of this kind which should be borne in mind. A company which does blasting in its quarry may be guilty of trespass, of creating a nuisance, of violating the recognized rights of adjoining land owners, or of negligence. Trespass may consist of such acts as the throwing of rocks on to another's property; this is physical trespass. A nuisance need not necessarily involve physical trespass; it is the unreasonable and unlawful use of property that constitutes a nuisance. The operation of a quarry is not a nuisance *per se,* but there are conditions in which it would be. The question is a matter of fact.

The quarry operator is liable under any circumstances for negligence—possibly for failing to do something that should have been done or for doing something that should not have been done. But the negligence in any case must have been the proximate cause of the damage or the efficient cause of it, leading to a reasonably foreseeable result. Negligence plays a very minor part in cases of this kind, according to Mr. Fackenthal.

M. Glenn Folger, Poughkeepsie, New York, attorney who was associated with Mr. Fackenthal in the defense of the New York Trap Rock case, led the discussion that followed by pointing out two methods by which it may be possible to get around decisions of the kind made in that case. He mentioned first a campaign of education among the general public, and cited as an example of what he meant the methods described in the article, *Quarry Blasting Problems Can Be Reduced Through Education,* by Jules E. Jenkins in the January, 1945, issue of Pit and Quarry. The public must be made to realize that quarry blasts do not cause damage to property. His second suggestion had to do with the organization in each quarry company of an efficient and diplomatic claim department to deal with claimants in an attempt to settle their claims out of court.

Dr. L. Don Leet, associate professor of seismology, Harvard University, said that he was impressed by the differences between the attitudes of different states. Thus, as an example, he cited the State of Ohio where concussion is trespass. It is unreasonable, he said, that such differences should exist on points of law and said there should be some central authority to establish authoritative attitudes, to which Mr. Fackenthal replied that the federal government, which one naturally thinks of as a central authority in

such matters, has no jurisdiction, and these hazards and reliefs are still matters for state legislation. Dr. Leet continued by saying that the public is unaware of the facts of blasting and its effects. It does not know, for example, that the vibrations caused by dynamite can not cause the damage attributed to it.

Otho M. Graves, chairman of the meeting, called upon Jules E. Jenkins (Vibration Measurement Engineers, Chicago) for some comment on the possibility of preventing suits for damages allegedly caused by blasting. Mr. Jenkins referred to his article in PIT AND QUARRY (already mentioned by Mr. Folger) for a statement of his theory of the proper approach to the blasting-damage problem and, as evidence of the correctness of his analysis, described a joint meeting held by several organizations of business men in a middle western city to listen to a discussion of this problem. At that meeting Mr. Jenkins explained to those assembled some of the little-known truths about blasting and the vibrations it sets up, illustrating his principles with easily understood demonstrations.

Harold Williams said at this point that there is a great difference between the effects of a blast in the open and those of one made under ground. Concussion resulting from the first can be and often is serious, but the vibrations caused by blasting below ground are harmless.

A member of the audience stated that in Connecticut reports of primary blasts must be made to the state police within 2 or 3 days after their occurrence and a record made of the names of persons claiming damage. Monthly reports are made on all secondary blasts. The state police make pin tests of all blasts and report the results.

Just before adjournment the officers for the coming year were elected. President Fred O. Earnshaw was voted back into office as were seven of the eight regional vice-presidents, E. Eikel of New Braunfels, Texas, succeeding W. F. Wise of Dallas in the southwestern area.

The Tuesday afternoon program was devoted to operating problems and was attended largely by operating men and representatives of equipment manufacturers. Under the guidance of T. C. Cooke (Lynn Sand & Stone Company, Swampscott, Massachusetts), and Nelson Severinghaus (Consolidated Quarries Corporation, Decatur, Georgia), many interesting problems were discussed. First on the agenda was methods of stripping and costs. J. A. Rigg (Acme Limestone Company, Fort Spring, West Virginia), briefly described the hydraulic removal of overburden at this deposit which was described in detail in a paper published by the U. S. Bureau of Mines in October, 1937. He said that this method has only limited application and is not suitable for horizontal deposits. At his plant no other method was possible, ample water was available, and three sinkholes were so located that the mud could be sluiced into them, thus taking care of the disposal problem. This work was done at a cost of $1.16 per cubic yard of overburden removed, according to Mr. Rigg.

Bruce S. Campbell (H. T. Campbell Sons Corporation, Towson, Maryland) said that at one quarry the dirt overburden is first removed and then the remaining rock and clay overburden is shot out and run through the crushing plant to be sold for fill and base material. This product is 50 to 75 per cent. stone. Le Tourneau scrapers, he said, remove the dirt at a cost of about 18 cents per cubic yard.

According to W. D. Manchester (Lynn Sand & Stone Company, Swampscott, Massachusetts) his company uses a backhoe with standard teeth for removing overburden from the deposit. This leaves some manual cleaning up to be done but with shorter teeth better results would be obtained. With the machine sitting on the ground surface material was excavated as much as 12 feet below grade.

Methods of feeding primary crushers were next discussed. D. E. Hamlett (Virginian Limestone Corporation, Ripplemead Virginia) said that in their plant a 60-inch by 12-foot pan feeder ahead of a 48- by 60-inch jaw crusher gives such a uniform feed that it is considered indispensable. The quarry stones range up to 7 tons in weight and many are elongated pieces. A 5-ton air hoist over the feeder also helps to prevent crusher delays. Mr. Campbell said that shovel crawlers are being used ahead of a roll crusher to even out the feed to it.

W. B. Bobbitt (Radford Limestone Company, Radford, Virginia) said that fines in the quarried rock cushion the shock of large pieces falling on an apron feeder and prevent damage to it. Such a feeder also turns the rock end on to the crusher, thus preventing bridging. An operator in Ohio, he said, uses a 5- by 6-foot electric vibrating feeder with grizzly fingers extending from it to let the fines fall through before the heavy rock. This feeder is handling rock up to 2 tons in weight.

Mr. Rigg said that, in his opinion, most shovels are too large for the crushers they feed and that in his plant crusher delays were cut down by reducing the size of the shovel dipper. He also said that the use of large iron wedges helped to keep the crusher clear. F. H. Edwards (New Haven Trap Rock Company, Meriden, Connecticut) agreed on the use of wedges but said that they sometimes get through and damage the secondary crusher. According to Mr. Campbell, a good shovel operator is the best insurance against crusher delays. Another operator said that a grab hook of the type used for handling riprap does a good job of clearing a crusher when used in connection with an air hoist but that it is dangerous. This reminded Mr. Campbell of the fact that his company uses a crane with an orange-peel bucket for loading riprap.

The use of a drop ball or "skull cracker" for breaking oversize stone in the quarry was the next subject. According to Mr. Edwards, his company has been aware of the disadvantages of secondary drilling and blasting for many years. Recently, at one of its 6 quarries, a drop ball was put in use and has proved to be satisfactory to some extent. He warned that extremely hard or irregularly-shaped stone can not be broken satisfactorily but that this method is ideal where the stone is slabby and comparatively soft. The size of the crane and ball to be used, according to Mr. Edwards, depends on the size of the operation. In this quarry, which has a capacity of about 150,000 tons annually, a 5,000-pound ball handled by a 1¼-cubic yard crane with a 50-foot boom is feeding a 42- by 54-inch jaw crusher. The cost with this method, he said, is only about one-seventh that of drilling and blasting.

T. C. Cooke said that in his trap-rock quarry a ball took the place of 5 or 6 jackhammers and did the work in less time. In a years' time the original 5,800-pound ball was worn down to 3,500 pounds. After a blast, he said, the rock is first spread out by a bulldozer and no loading of the stone is done until all the oversize pieces have been broken. Then after the shovel loads all suitable rock there are always a few large pieces remaining to be broken. The flat face of a rock is always turned up and, said Mr. Cooke, it is seldom that more than one blow is required to break it. In order to save time the ball is dropped from full height only for the largest pieces and from lesser

heights depending on their size. He emphasized the fact that the skill of the operator is the important factor. He also said that it is unsafe for any worker to be closer than 200 feet when doing such breaking, a fact which makes a long quarry face a decided advantage with this method. The crane operator, he said, is protected by a metal plate behind which he can duck. This is to be preferred to a wire screen which interferes with the operator's vision.

In a discussion of the relative merits of lead- and tin-base babbits for crusher bearings operators presented conflicting experiences which threw no new light on this subject.

In discussing methods of transporting quarry stone, Melvin C. Dow (New York Trap Rock Corporation, Newburgh, New York) said that the hoist and barney car system of truck transportation for uphill hauls is satisfactory when grades do not exceed 8 per cent. The use of a crusher in the quarry with an inclined conveyor leading out is the cheapest method, he said.

Regarding the stock-piling of aggregates without segregation Mr. Severinghaus recommended the piling of only closely-sized stones in separate piles. Another operator said that he has been successfully stock-piling ¾- to 3½-inch stone by depositing it in 4-foot layers.

Mr. Goldbeck said that there is some opinion that the size tolerances in simplified practice recommendation R163-39 are too close in the finer sizes. Irving Warner advised producers to keep well within the tolerances at the top and bottom in order to insure against rejection of the material.

In the discussion of drilling methods and types of drills Mr. Severinghaus referred back to a paper he presented before the A.I.M.E. in 1938. Using 6½-inch drills in granite it was found that 35-foot spacing and 16-foot burden worked out best. A relatively light burden, he said, scatters the rocks so that few of the larger pieces which must be broken are buried. This method, he said, is practical only if truck haulage is used.

W. H. Margraf, manager of the processed-limestone department of the Marble Cliff Quarries Company, presided at the Tuesday afternoon meeting of agricultural-limestone producers. He introduced Dr. William A. Albrecht, chairman of the soils department, College of Agriculture, University of Missouri, who spoke on *Mobilizing the Fertilizer Resources of Our Soils.*

Dr. Albrecht is one of the country's foremost authorities on soil fertilization and his interesting and at times intensely dramatic treatment of the subject held his audience spellbound. Making liberal use of photographs, maps, and charts, he traced the history of lime-impoverished soils in various parts of the world and interpreted the effects in terms of economic and political developments and the vigor and fertility of populations. He pointed out that calcium, which heads the list of strictly soil-borne elements required for the proper nourishment of life, is the most mobile of the earth's nutrient ions. The many compounds it forms, in some of which it is relatively soluble and in others highly insoluble, and the ease with which it may be displaced from soils by less important elements account for the absence of calcium from surface soils.

Dr. Albrecht recalled that scientists at first suggested that lime was effective in giving better legume growth because it counteracted soil acidity. This misunderstanding, he said, persists widely to-day despite mounting evidence that liming serves because it supplies the plants with calcium and not because of its neutralizing effect upon acidity.

To demonstrate this distinction tests have been made in which calcium as a chloride was drilled with soybeans in comparison with similar drillings of calcium hydroxide. Both the treatments brought about effective nodulization, deeper green color and larger plants of more stable cell structure, although the hydroxide neutralized soil acidity while the chloride did not.

Dr. Albrecht brought out the interesting fact that calcium has long played a far more important role in soil fertilization than has been generally recognized, although lime was used in Rome before the opening of the Christian era. With the introduction of such fertilizers as nitrogen, soluble phosphate and potassium, attention was unfortunately drawn away from the element calcium, although it continued to perform its service anonymously. Superphosphate fertilizer, he pointed out, carries more calcium than it does phosphate, although until recently its important function was considered to be the introduction of phosphorous.

Dr. Albrecht believes that calcium also serves in the mechanism of moving other nutrients into plants and in excluding some non-nutrients. He feels that observations and scientific studies may uncover still other important functions of calcium in plant growth and will set the pattern for studies of the other elements whose nutritional significance is not as well understood. There is, he said, a growing recognition of a too-long neglected truth: that our national health and future security are largely dependent upon our soil.

The next speaker was W. G. Finn, assistant chief of the Agricultural Adjustment Agency, who discussed A.A.A. policies and plans and reviewed briefly the accomplishments of the past year.

The concluding talk was on the subject, *Price Control and Production of Agricultural Limestone*, by Henry A. Huschke, of the Agricultural Chemicals Section, Office of Price Administration. Mr. Huschke discussed several of the recent changes which have been made in the price control of agricultural limestone.

Fred O. Earnshaw, president of the association, presided at the annual banquet on January 30, which was the occasion for the presentation of the National Crushed Stone Association's safety awards. Mr. Earnshaw introduced R. J. Reigeluth, chairman of the executive board of the National Safety Council, who prefaced the presentation ceremony with a brief description of the work which is being done by the safety council.

In appealing for a more general recognition of the importance of safety work, Mr. Reigeluth disclosed that in 1944 more Americans were killed in accidents than on all the battle fronts. Formed 32 years ago by a small group of industrialists to improve safety conditions in their industries, the National Safety Council now has 6,000 members and an annual budget of more than $2,500,000. Its program has in recent years been broadened to include homes and schools as well as industry.

The following plants received awards in the 1944 safety competition. The Bessemer Limestone & Cement Company's quarry at Walford Station, Pennsylvania; the North Le Roy and Jordanville, New York, and Rock Hill and White Haven, Pennsylvania, plants of the General Crushed Stone Company; the Oglesby, Illinois, and Cape Girardeau, Missouri, plants of the Marquette Cement Manufacturing Company; the Catskill, New York, limestone quarry of the North American Cement Corporation; and the Plainville and Granby, Connecticut,

plants of the New Haven Trap Rock Company.

The principal speaker at the banquet was Colonel Willard T. Chevalier, publisher of *Business Week*.

Many people believe, said the speaker, that war-time controls will be thrown off, but no one knows when, by whom, or with reference to what. He cautioned his listeners against hoping too sanguinely for a quick relinquishment of controls.

The duty of leadership rests upon business men, he continued, and they must be able to analyze conditions and problems, imagine and plan solutions, and dare to go ahead. The rest will follow.

Business men must strive for the best but expect the worst, the speaker said. Government must create the environment in which private industry can provide jobs. The construction - material and construction industries must be ready to perform the job that will be ready for them when peace arrives. We must be prepared to abandon obsolete methods and work for efficiency, which means raising the standard of living by producing more goods at lower cost for sale to more people. As soon as better methods and equipment become available, they must be adopted or we can not attain that efficiency.

A shortage of plans, said the speaker, may prove to be our most serious obstacle in our attempts to provide widespread employment. Victory will be worthless unless we have plans for utilizing the opportunities it provides. Every believer in free individual competitive enterprise must do everything possible to prove that that system can be made to work. If we Americans—the greatest exponents of the capitalistic system—do not demonstrate that, in a world largely dominated by collectivist doctrines, who else will? he asked.

The Wednesday morning session, devoted to developments affecting sales, was presided over by J. C. Dooley (New York Trap Rock Corporation, New York). The first paper was *Durability of Concrete* by Charles E. Wuerpel, Engineer-in-Charge, Central Concrete Laboratory, U. S. Army Corps of Engineers, Mount Vernon, New York. After urging producers to take more interest in the promotion of the use and development of knowledge about their product Mr. Wuerpel described durability tests which have been made in recent years. These tests were made with both flake and neutralized Vinsol resins with .01 and .03 per cent. added, four different brands of cement with 5.37 bags per cubic yard, 2½-inch slumps, sand with a 2.7 fineness modulus, ¾-inch gravel and ¾-inch recrushed trap rock, and with the water-cement ratios and sand-aggregate ratios varied to meet the above requirements. The results of these tests, he said, showed that the crushed stone samples entrained more air than those made with gravel but that their compressive strengths were about equal. The highest individual strength after 28 days was obtained with a combination of neutralized Vinsol resin and crushed stone. There was little difference generally in the strengths obtained with the flake, plain, or neutralized resins and all of them added durability. The use of .01 per cent. of neutralized resin was preferred because it gave just as good results as .02 and better than when .03 per cent. was used. Flake Vinsol resin, he said, reacted very violently with one of the four cements used. He also stated that it was best not to redesign a standard mix for the use of resin but that such a mix should be designed from scratch.

Mr. Wuerpel then described the machine which made it possible to run 200 cycles of freezing and thawing within 28 days. With it more extensive tests are to be made of different aggregates from all parts of the country.

According to Mr. Wuerpel, the brands of cement tested showed wide variations in the amount of air entrained for different lengths of mixing except where 1.01 per cent. of flake Vinsol resin was added at the mixer. He stated his conviction that air entrainment is a tremendous forward step in the technology of cement and concrete and said that if test results continue their present trend he will recommend the addition of flake resin at the mixer. For such addition, he said, some method of accurate and automatic mechanical control of feed of the resin is necessary.

While the use of air-entraining ingredients increases the durability and the placeability of concrete, said Mr. Wuerpel, it also causes a slight decrease in strength. Tentative tests show that this loss of strength may be overcome by the addition of some kind of accelerator and more work will be done in this direction.

Other tests, said Mr. Wuerpel, point to the fact that the thermal coefficients of expansion of the aggregate and the matrix must not differ too greatly if failure of the concrete is to be prevented. Mr. Goldbeck then commented on the fact that the above tests gave results which checked very closely with those made under his supervision.

Bernard E. Gray, general manager and chief engineer of The Asphalt Institute, New York City, then spoke on *Trends in Asphaltic Pavements*. He said that more than 2,000,000 tons of cut-back asphalts were used in 1944 and that there was a very definite trend in favor of plant mixes and of liquid asphalts of high viscosity and asphaltic cements. He stressed the great need for products suitable for the rehabilitation and widening of existing primary roads. Also mentioned were the many new uses developed for asphalt including stabilized railway ballast, river revetments, etc. There is also, he said, a growing need for thicker asphalt pavements and for non-stripping mixtures which can even be placed under water without the use of forms.

Existing specifications, said Mr. Gray, must be constantly revised to keep up with such developments and the many paving specifications in existence must also be correlated. On the rolling of asphalt, for example, Mr. Gray said that many states still had the same arbitrary specifications in effect 20 years ago. Only 15 states require that rolling should be carried on until the pavement has been compacted to the satisfaction of the engineer in charge. The Institute, he said, is revising its specifications to eliminate all vague and obsolete requirements and is adding all new developments in the use of asphalt as they occur.

Mr. Gray then described a simple cutting tool which makes it possible to obtain samples which show whether or not the finished pavement has the qualities for which it was designed from laboratory tests. Such tests, he said, make it possible to develop a suitable rolling procedure and give the contractor the advantages he should get from the modern equipment now in use. A stable and waterproof pavement, according to Mr. Gray, is nearly always durable and the requirements for the behavior of a mix should be very definite. In closing he said that the Institute has just completed a new manual on the design, mixing, etc., of asphaltic mixtures.

In the discussion that followed the presentation of these papers Mr. Wuerpel said that Darex was not used in any of the air-entrainment tests he described but that its action would be about the same as that of the resins used.

In answer to questions Mr. Gray said that there is now no standard

measure of adhesion between asphalts and aggregates but that a definite test of stability will soon be available. He also stated that the suitability of an aggregate in concrete is not necessarily a measure of its suitability in an asphaltic mixture.

In *How Facts Help Sales* Mr. Goldbeck said that the angularity of crushed stone, within limits, is a good sales argument and should be backed up with instances and literature. Specific gravity, he said, is important in making estimates and calculations. Each aggregate, according to Mr. Goldbeck, is an individual material and a salesman should know how his particular material compares with competitive products. The knowledge of a salesman, he said, makes for better coöperation with production and enables him to assist in the writing of specifications which are not only better but which also do not hamper sales. An informed salesman, he said, not only has an advantage over his competitors in getting the business available but will also discover many unsuspected fields for sales.

The Wednesday luncheon was cut short due to the unavoidable absence of the scheduled speaker, John U. Shroyer, secretary of highways, Department of Highways, Harrisburg, Pennsylvania. Instead Otho M. Graves introduced John Curtin (Warner Co., Bellefonte, Pennsylvania), new president of the Pennsylvania Stone Producers' Association, and H. H. Wagner, who was re-elected secretary. He also introduced Jim Skelly, new president of the American Road Builders' Association.

With H. E. Rainer, manager, Federal Crushed Stone Corporation, Buffalo, presiding, the final session of the convention dealt with the problems of stabilization and management and industrial relations. Miles Colean, consultant on construction to the National Planning Association, analyzed the problems of stabilization in the construction industry. Pointing out that there is not available at present enough adequate information to make possible the development of a fully adequate and effective stabilization program, Mr. Colean stressed the importance of making a start now so that at some future time such information will be at hand.

He outlined some of the more pressing requirements that must be fulfilled if the wide fluctuations in construction activity are to be curtailed. Accurate and complete data on construction activity must be available in order that danger signs may be recognized at once and acted upon before mere trends become calamitous landslides, and Mr. Colean believes that this phase of the program should be initiated and directed by the federal government. He asserted that many changes are necessary in the prevailing attitudes and practices with respect to public works if stabilization is to become a reality, and in this connection he pointed out the importance of synchronizing public works and private construction in order that publicly-financed projects may quickly go ahead when slack periods develop.

Mr. Colean stated that in his opinion the importance of purely maintenance operations has been underestimated in the past, and he strongly advocated that improved facilities be made available for the financing of such work.

In recalling briefly some of the history of the late depression, Mr. Colean pointed out that the compounding of the private construction "boom" with a vigorous public-works program made an eventual collapse inevitable, since there was no back log of any sort to replace the private-works "boom" when it commenced to wane. Had there been any sort of stabilization program in the '20's, he stated, the conditions leading up to the crash in 1929 would have been recognized early enough to have limited the slump to about 30 per cent. instead of the disastrous 70 per cent. that actually occurred.

With the construction industry now at depression levels, Mr. Colean thinks that the inauguration of a stabilization program presents even more serious difficulties than would have been the case following the first World War, and that at least two years will be required to get the industry on its feet after V-day.

Management and Industrial Relations was the subject of an address by Lee H. Hill, vice-president of Allis-Chalmers Manufacturing Company. Mr. Hill was placed in charge of industrial relations at Allis-Chalmers several years ago following a bitter and prolonged strike and his success in healing the breach between management and labor has gained him a wide reputation.

In discussing the importance of personal contacts between employees and supervisors, Mr. Hill pointed out that labor relations are not the sum and substance of industrial relations since the demands of union representatives do not always represent the demands of employees. Unions, he said, play no part at all in many of the most significant relationships between management and labor, and he cited such examples as the mechanics of hiring, medical examination, introduction to the job, job training and others.

Mr. Hill expressed a firm belief that industrial relations can be measurably improved under sound, alert and unified management policies, and that this phase of operating a business or industry now assumes front-rank importance.

The remainder of the session was devoted to the reports of the convention committees on auditing, resolutions and constitution and by-laws.

South Dakota Cement Plant Shows Profit

South Dakota's cement plant ended 1944 with a $76,000 profit, according to a report January 5 to Governor Sharpe by Norbert De Kerchove, business manager of the plant. A total of $18,000 was added to plant reserves as a contingency fund.

De Kerchove reported that current production fell off 273,629 barrels in 1944 from 494,711 barrels the year before when the plant supplied all cement for the Rapid City Army Air Base and several other military projects in the state.

Governor Sharpe said 1945 sales may be expected to parallel last year's which he termed a "good pattern year for the rest of the war." The plant is in "first class shape" and its capacity has been increased approximately 500 barrels a day by "good management," he said.

Beaver Stockholders Awarded Judgment

Minority stockholders of the old Beaver Portland Cement Company were awarded a judgment of $157,821 in circuit court at Portland, Oregon, recently in a suit filed against the Pacific Portland Cement Company of San Francisco.

The Pacific company obtained the controlling interest in the Beaver firm in 1926 and in 1940 bought the remaining assets and properties, including the cement plant at Gold Hill, Oregon, for $862,228. The minority stockholders followed with the suit, alleging that the assets were actually in excess of $1,000,000.

Personalities at the New York Directors' Meeting of National Sand and Gravel Association

• These are some of the photographs taken at the recent Directors' Meeting of the National Sand and Gravel Association in New York which was reported in the February, 1945, issue of Pit and Quarry. In this issue will be found an illustrated report on the meeting of the directors of the National Ready Mixed Concrete Association which followed.

• Left to right: E. F. Deister, Deister Machine Company, Fort Wayne, Ind.; W. F. Berger, John A. Roebling Sons Company, Trenton, N. J.; Jess Richards, Link-Belt Company, Philadelphia, Pa.; W. H. Girder, Carnegie-Illinois Steel Company; E. J. Goes, Koehring Company, Milwaukee, Wis.

• Stuart D. Brown, Dravo Corporation, Pittsburgh, Pa., and H. F. G. Pelsue, Metropolitan Sand and Gravel Corporation, Port Washington, N. Y.

• Above: J. T. Mogan, and J. H. Reid, Consolidated Sand and Gravel, Ltd., Toronto, Ont.

• R. N. Coolidge, Cumberland River Sand Company, Nashville, Tenn., and Alex W. Dann, Dravo Corporation, Keystone Sand Division, Pittsburgh, Pa.

• Below, right: C. W. Shirey, Waterloo, Iowa; Stephen Stepanian, Arrow Sand and Gravel Company, Columbus, Ohio; and Robert Mitchell, Consolidated Rock Products Company, Los Angeles, Cal.

Appearance and Efficiency . . .

Combined in New Borough Asphalt Plant to Achieve Harmony With It's Location on Manhattan's East Side

By W. E. TRAUFFER

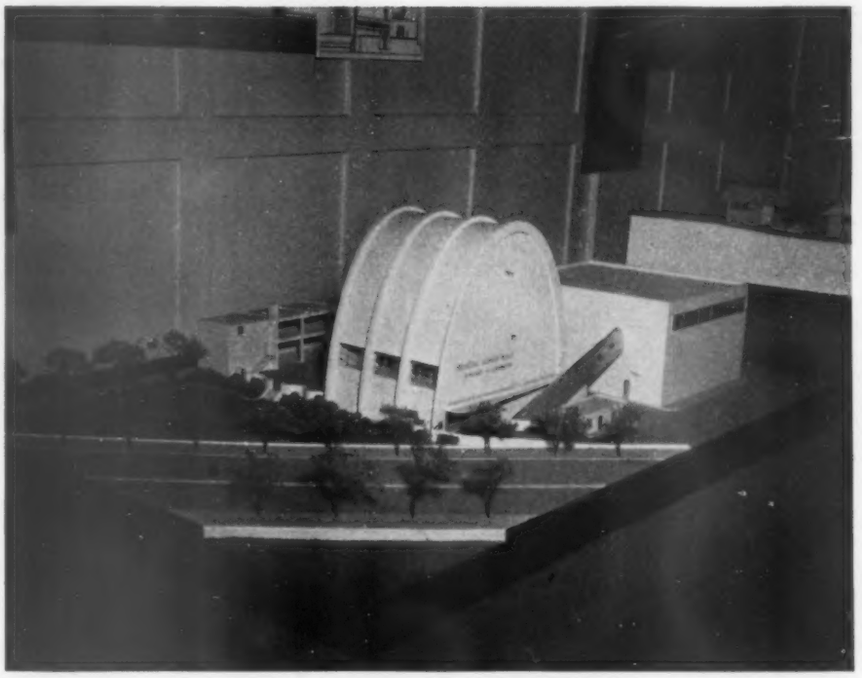
another ON THE SPOT report

ASPHALT or aggregate-bituminizing plants have for many years been an increasingly important part of any community and of industry in general. As manufacturing plants, however, they have usually been designed strictly from a practical standpoint with only casual attention being given to their aesthetic values. It was inevitable, however, that this industry would eventually be affected by the growing realization of industry in general that attractive plants can be built with no loss in functional efficiency and that the added cost, if any, is low for the advertising value received.

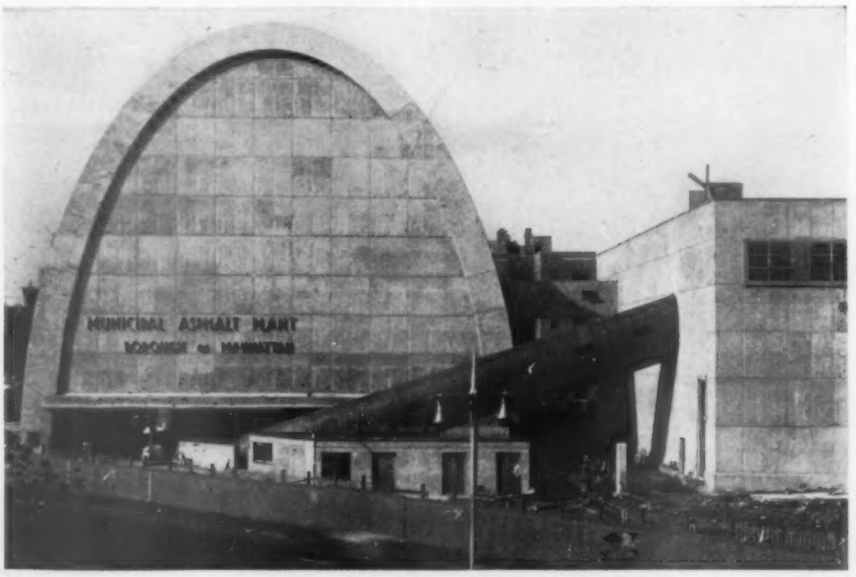
Probably the most attractive asphalt plant ever built is that operated by the Borough of Manhattan, New York, which went into operation early in 1944. It replaced a plant which was built in 1914 and was torn down in 1941 to make way for the East River Drive, an express highway which now carries vehicular traffic from the Triborough Bridge in the northern part of the Borough to the Battery at its extreme southern tip. Although replacement and repairs had been made to the old plant from time to time breakdowns were inevitable and maintenance costs were high. With the advent of this drive came new riverside parks and playgrounds along with improved waterfront commercial facilities, enhanced property values and a general restoration of the natural beauty of the waterfront.

The site of the new plant at 90th Street and the Drive was originally selected because it provided a waterfront location near the geographical center of the borough. Because of the radical change in the character of this neighborhood in recent years from semi-commercial to largely high-class residential the Office of the Borough President of Manhattan decided to adopt architectural treatment which would blend harmoniously with that of the Drive and with the trend of the neighborhood.

As the plant is essentially an industrial structure the department decided on reinforced concrete construction and turned over to the consulting architects, Ely Jaques Kahn and Robert Allan Jacobs, an elevation and plan of the machinery which would be required to operate it. This resulted in the elliptical design of the mixing plant, Building No. 2. Its thin vault-like concrete construction is strengthened by four 90-foot-high ribs reinforced with light, self-supporting steel trusses instead of the usual rods. The storage bin building, No. 3, is of more nearly standard concrete construction and is designed to withstand safely all possible conditions of loading. Because of the nature of sub-surface conditions a total of



• Scale model of Manhattan asphalt plant built by Museum of Modern Art and exhibited at Marshall Field's Chicago store.



• The modernistic new asphalt plant operated by the Borough of Manhattan with East River Drive in foreground.

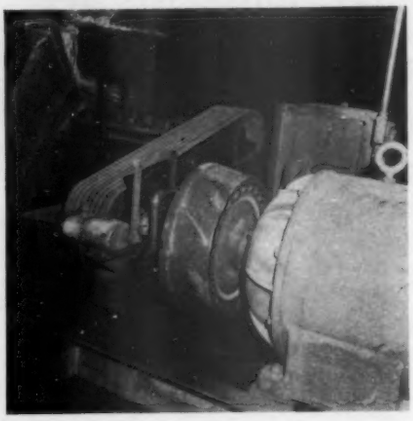
nearly 2½ miles of structural steel H-shape piling was driven to rock under these buildings. Parsons, Brinckerhoff, Hogan & Macdonald were the consulting structural engineers.

The mechanical excellence of this plant should also not be overlooked as it is undoubtedly one of the most advanced and efficient plants in existence. The F. D. Cummer & Son Company held the contract for all machinery and made most of the major items. Those items not made by Cummer were obtained from other manufacturers with the approval of the Borough engineers and of Syska & Hennessy, consulting mechanical engineers. The plant is designed to make any type of hot or cold mix. There are also provisions for the future production of ready-mixed concrete on a small scale.

The entire project was designed under former Borough President Stanley M. Isaacs and Lester C. Hammond, former chief engineer, and it was built and is being operated under the general supervision of Edgar J. Nathan, Jr., President of the Borough of Manhattan, Walter D. Binger, Commissioner of Borough Works, and Dean G. Edwards, chief engineer. L. H. Csanyi, a civil engineer, is in charge of the operation of the plant.

The appearance of this plant is further improved by the elimination of the unsightly outdoor storage piles commonly found around most asphalt plants. Ample covered reserve storage of raw materials is provided to make the plant independent of any ordinary breakdown of the dock or conveying equipment or of delays in the barge delivery of these materials. The provisions for the storage of complete barge loads of these materials also effects savings in delivery costs.

The plant is designed eventually to have three independent systems from the materials storage bins through the drying, mixing and loading of the product. At present only two of these systems have been installed and these are duplicates. With one line in operation an operating crew of 14 men is required for a capacity of 350 tons daily and with both lines in operation 17 men are required to produce 700 tons daily. The third system will be smaller and with it in operation the plant will have a capacity of 900 tons daily with a crew of 20 men. This compares to the old plant's capacity of 450 tons daily. As the plant is in nearly continuous operation a separate maintenance crew is required.



• Drive of one of two drier draft fans with hydraulic couplings through which speed can be regulated.

On the river, across the drive from the plant, is the concrete dock at which all the materials are received. Sand, stone and coal are unloaded from barges by a Clyde whirley crane on rails with a 1½-cubic yard clamshell bucket. These materials are fed through a hopper and feeder on the 24-inch by 300-foot main Jeffrey belt-conveyor which carries them under the drive through a concrete tunnel to the storage building.

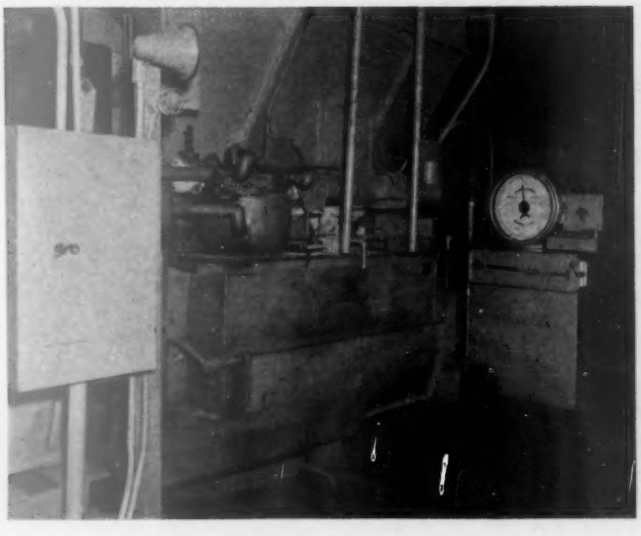
The limestone dust filler for the asphalt plant is unloaded from bulk barges by a Fuller-Kinyon 6-inch Type D portable unloader with a capacity of 45 tons per hour. This machine has two 5-horsepower disc feeder motors, two 5-horsepower steering motors and a 75-horsepower drive motor and is operated by remote controls. The air for this machine is supplied at 30 pounds pressure by a Fuller rotary compressor. The pipelines carry these materials under the drive to the storage silos in Building No. 2.

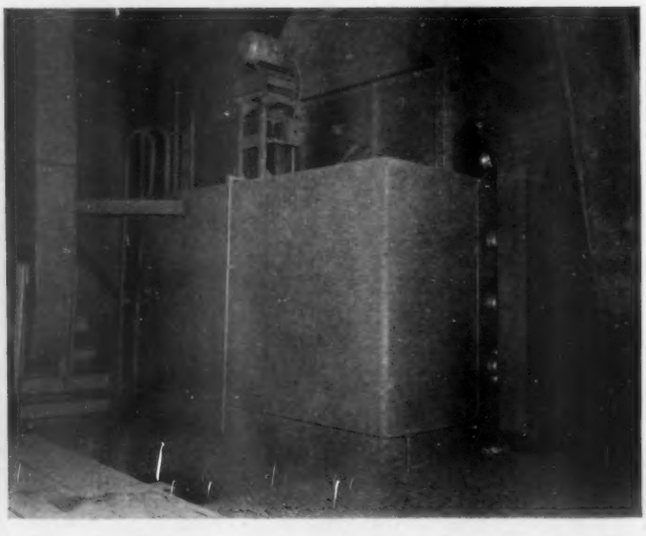
The liquid asphalt and fuel oil are pumped from barges through pipelines via the tunnel to the asphalt storage tanks in Building No. 2 and the fuel oil storage tanks in the storage shed, Building No. 1.

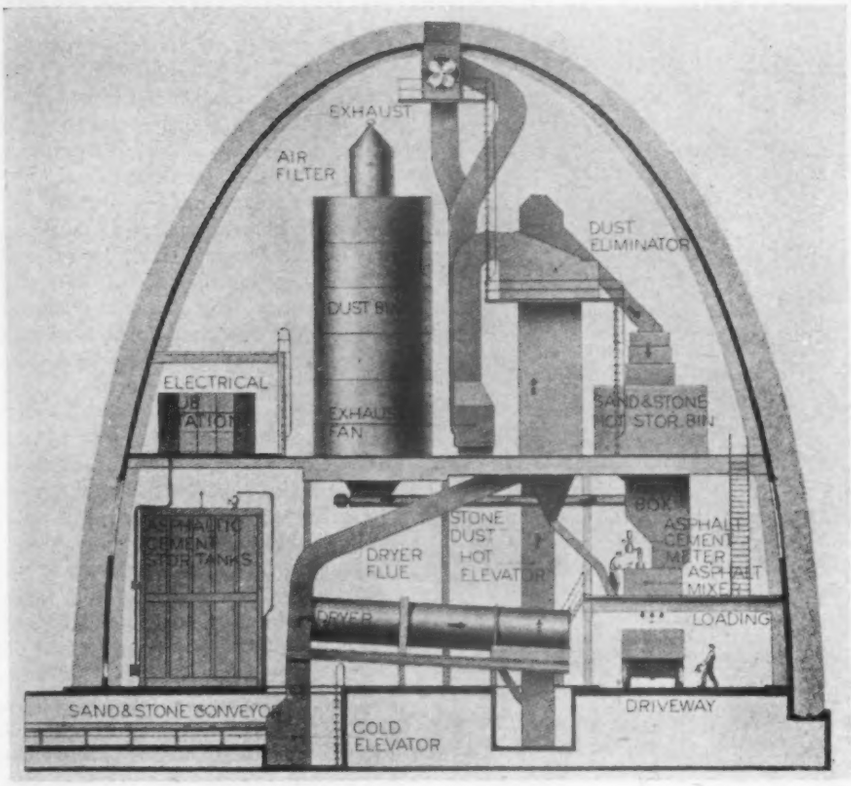
The sand, stone, or coal, whichever is being handled, is discharged from the main tunnel conveyor on a 24-inch by 50-foot reversible cross belt-conveyor in the materials-storage building. This in turn discharges from one end to an 18-inch reversible shuttle belt-conveyor at right angles to it which discharges into a row of three bins of 1,000 cubic yards, 1,000 cubic yards and 200 tons capacity, respectively, for concrete sand, concrete gravel, and coal. The aggregates are reclaimed from these bins by a tunnel belt-conveyor. The coal is reclaimed direct.

The sand and stone for the asphalt plant are stored in separate large bins, one on each side of the 50-foot cross conveyor described above, and over three reclaiming tunnels, one for each of the three

• Left: One of the two 4-ton batching and mixing installations with scale and asphalt meter. Below: One of the hot-material bins with its screen and bin-level indicators.







• Cross-section of mixing plant showing most of the important units of equipment and the flow of materials through them.

bituminizing systems, two installed and one for future installation. Two 18-inch reversible shuttle belt-conveyors over the two tunnels now being used discharge sand from one end and stone from the other end into these bins which will hold 3,000 cubic yards and 2,000 cubic yards, respectively, when all three systems are installed. The first of these shuttles is fed from the 50-foot main shuttle by a transverse conveyor. The second shuttle is fed direct from the 50-foot cross belt which will also feed to the future third shuttle. No trippers are used in this system. Manhattan belting is used on most of the conveyors.

From this point on the two circuits are entirely independent of each other. Each of the two 18-inch by 70-foot reclaiming conveyors feeds the stone or sand into a surge hopper. Jeffrey - Traylor vibrating feeders discharge these materials to the two Jeffrey 40-foot cold bucket elevators which feed the two 6½- by 23-foot Cummer 60-ton per hour rotary driers. These driers are fired at both ends by No. 6 Rayoil rotary fuel-oil burners.

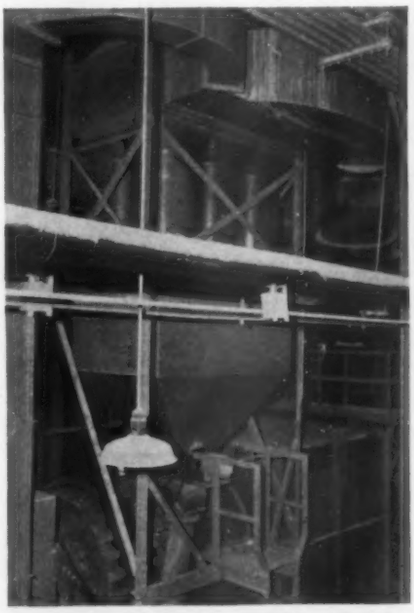
Each drier is connected to a 30,000-c.f.m. American Blower No. 6 exhauster fan followed by a Western Precipitation Corporation Multiclone dust collector. Western Precipitation Cottrell electrical precipitators will later be added to reclaim any fine dust escaping these units. The reclaimed dust is fed back into the system through rotary gates into the hot elevators. The fans are driven through V-belts and American Blower hydraulic couplings of the scoop-control type.

The hot material discharged from each of the driers is fed by the Jeffrey 74-foot hot elevators at a temperature of 400 to 550 degrees F. on two Robins 4- by 8-foot 2-deck vibrating screens over the two 100-ton, 2 - compartment hot - material storage bins. These screens have ½- and 2½-inch wire cloth on their top decks and No. 4 cloth and blank plate on their bottom decks. These screens are fully inclosed. Usually when sheet asphalt is being made only sand is stored in these bins. When either binder or asphaltic concrete is being made sand is stored in one compartment and stone in the other. These bins are over the weigh batchers.

The hot bin is equipped with Bindicators on four levels so that the amount of material in it is always known. The bin is insulated so that hot material can be kept overnight and production can be started in the morning without waiting for the drier to heat up.

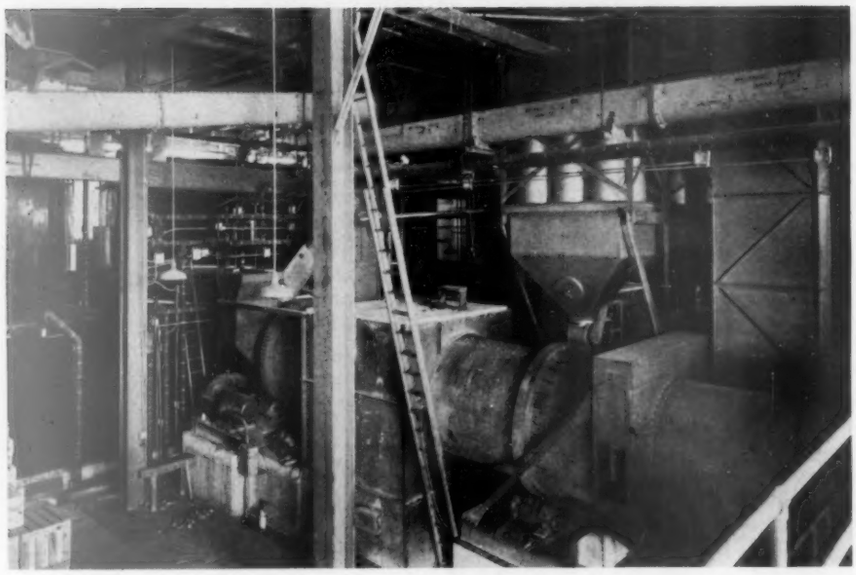
The three dust storage silos are constructed of concrete blocks and have a capacity of 275 tons each. They are equipped with Bindicators on two levels at the ¼ and ¾ points. Jeffrey screw conveyors feed the dust from two of the silos direct to the two Cummer 4-ton weigh batchers now installed. Dust from the third silo can also be fed into one of the batchers by means of a cross screw conveyor. The stone and sand are discharged into the batchers direct from the bins above them. The batchers are equipped with Fairbanks springless dial scales and Printomatic attachments.

The asphalt pumped from the dock is stored in two 30,000-gallon main storage tanks and three 20,000-gallon service tanks. In a pit under these tanks are two 125-g.p.m. rotary gear pumps. One of these is ordinarily used for operating feed and the other to transfer asphalt from one tank to another but either or both can be used for either purpose. Each of the feed lines has a 1,000-gallon surge tank to even out the intermittent use of this material. Both tanks overflow back into the service tanks. Compressed air at 30 pounds pressure is introduced into the surge tanks to produce sufficient pressure at the Bowser meters at the mixers.



• The dust-collector which reclaims dust from the exhaust gases of the drier which is visible below.

In each circuit the liquid asphalt is discharged from the meter into the mixer and the sand, stone, and dust are manually dumped from the batcher into the mixer in the proper proportions. After a pre-determined mixing cycle, during which period all ingredients are thoroughly mixed, the mixer gate is opened and the batch dumped into the truck for delivery. At present a 4-ton batch is discharged from each mixer every 2 minutes and while one is being



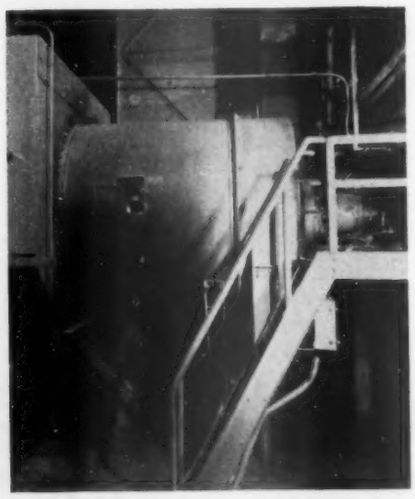
• This interior view of the mixing plant, taken just before construction was completed, shows the driers, dust-collectors, elevators, etc.

mixed another is being weighed. Most of the equipment is now in place for a complete interlocking automatic control of the entire batching and mixing cycle. The two 4-ton Cummer mixers are each driven at 45 r.p.m. by 125-horsepower G.E. motors. A Fuller 2-stage rotary compressor supplies the air for the cylinders operating the batcher and mixer discharge gates and for the a.c. surge tanks.

The entire a.c. system is electrically heated. G.E. Calrod electrical heating units are used on the storage and surge tanks, the pipelines and the mixers. The liquid asphalt is

• The 2-stage rotary compressor which supplies air for use in the plant.

delivered to the plant at a temperature of over 250 degrees F. and this temperature is maintained in the insulated storage tanks by the electric heating units with little heat loss. Further heating of the liquid in the service tanks is automatically controlled so that it is delivered at the meters at a temperaure of 320 degrees F. A total of 410 kw. of heating elements is used in the tanks and 210 kw. in the pipelines. The asphalt in the main tanks is kept at a moderate heat overnight or over week-ends at a moderate expenditure of power. The night watchman



• The rotary fuel-oil burner on one of the two 6½- by 23-foot rotary driers.

turns on full heat at about 3:30 a.m. and the liquid is in condition for use by 7:30 a.m.

Automatic controls will eventually be used wherever possible but most of the equipment is now manually controlled. Each shuttle conveyor in the materials-storage building is individually controlled. The others are controlled from the head of the main conveyor. There is an interlocking control on the reclaiming belt, cold elevator, drier, hot elevator and screen which functions upon the filling of each hot bin.

A Brown potentiometer pyrometer on the drier floor records the temperature of the flue gases and of the hot material leaving the driers. At this point also are the controls for the fluid clutches on the drier draft fans located on the floor above.

On the mixer floor a Brown potentiometer pyrometer indicates and records the temperatures in the two hot-sand and stone bins. On the main floor are the Bindicator signal lights and horns which indicate when the stone dust silos are full.

In the control room on the upper floor there are also Foxboro temperature recorders for the five asphalt storage tanks, the automatic thermostatic controls, switches, etc. There is another room for the controls of the future Cottrell system. On a platform under the roof in compartments enclosing the dust vents are the two 10,000-c.f.m. fans which ventilate the building.

The third of the new concrete buildings, known as No. 1, which houses the 45,000-gallon fuel-oil storage tank, also houses a hot water heating system for heating the oil. Other buildings house offices, repair shops, supply rooms, etc. A complete chemical and physical testing department is maintained in which all raw materials are tested, the range of formulae are prepared, and samples of finished pavement are tested.

Perlite to Be Used for Manufacture of Wallboard

Known as the Fluftrock Corporation, a new concern has a plant under construction at Yerington, Nevada, for the manufacture of wallboard and other construction specialties.

The raw materials to be utilized will be perlite and gypsum. The construction and equipping of the new plant has proceeded slowly due to the labor shortage and the difficulties of obtaining machinery. The management plans to process about 50 tons of perlite per day as soon as it is possible to get the plant in production.

The perlite will be quarried and trucked to the plant by an independent contractor where it will be expanded in kilns. Gypsum will be mined at the Regan deposit about 9 miles south of Yerington and will be calcined at the new plant for use principally as a binder for the perlite in wallboard.

• Your country is still at war, —are you?

Obtain Priority on Prosperity Through the Post-War Reserve

By ARTHUR ROBERTS

MANY pit and quarry operators are thinking about post-war possibilities, some have rather nebulous plans but few, if any, have adopted a fiscal program with which to finance their plans. One is useless without the other. Post-war rehabilitation, promotion, expansion and war losses should be underwritten now by means of the post-war reserve, not when the war is over.

In normal times reserves are opened to cover depreciation of buildings, machinery, trucks, bad debts, etc. The accounting routine is to charge current profit and credit the reserve so that the sum set aside will equal the cost of the depreciable asset at write-off. The post-war reserve is built the same way, charging current profit or other source and crediting the post-war reserve.

Forward-looking business men are setting up post-war reserves now to cover:

1. *Deferred Maintenance.* — Repairs and maintenance deferred because of the difficulty of getting man power and materials to do these jobs properly now. When repairs are deferred, they are always more costly than repairs made immediately. Such expenses are chargeable now, not to the post-war period, because sound accounting demands that current revenue be charged with all reasonably determinable costs and losses fairly applicable thereto. Wartime losses, costs and contingencies should be charged to the war period.

2. *Forced Obsolescence.* — Much equipment still in the process of depreciation on the books will be old before its time at the war's end because improved equipment will be marketed then and business men must invest therein to keep up with competition and keep down costs.

3. *Building Expansion and Rehabilitation.*—New types of business buildings and building equipment from lighting fixtures to air conditioning will be marketed after the war. The pit and quarry operator who fails to modernize in the post-war period or to be in a position to expand his facilities if heavy civilian production keeps national income high, will short-circuit profits. When business movement becomes normal again, when restrictions are removed, a heavy demand for civilian production and requirements, long bottled up, will hit the market with oil-gusher volume and many business men will require expanded facilities to handle the increase over pre-war sales.

4. *Equipment Written Off Since Pearl Harbor.*—Normally, at write-off, machinery and other depreciable assets are replaced, so that another depreciation charge appears automatically in costs. To-day many business men are still using assets written off since the war because they can not get replacements and no depreciation charge appears in costs, so either their selling prices are costed too low or prices are maintained as before and the additional profits go into the bank eventually. This additional profit may be earmarked for post-war use so that funds are available for new equipment after the war. By maintaining a depreciation charged in costs even though equipment has been written off the business man gets these funds from his customers.

5. *Working Capital Ratio.*—Increasing the working-capital ratio or "seed money" in order to finance the increased obligations resulting from expanded volume in the post-war period.

6. *Post-war Promotional Expense.* —Many new products will be offered eager purchasers after the war. It will take money to promote them most profitably. Waiting until the post-war period to budget this expense and arrange to procure the funds is poor business management. Do it now. Because this is a seller's market, many business men have discontinued advertising or reduced it. Some are setting aside their pre-war advertising appropriation in a reserve for post-war advertising.

7. *Loss on Accounts Receivable.* —Money is abundant to-day. Many are giving credit more liberally. After the war if national income drops, some of these accounts may have to be written off. Wise business men are insuring against this hazard now with a post-war reserve.

8. *Inventory Losses Through Price Decline.*—After World War I prices declined sharply. In the event of similar declines after this war, post-war reserves will "cushion" the loss.

Where are business men getting funds to finance their post-war plans? Out of 377 business men queried anent post-war reserves, 255 charged current profit, 21 charged net worth, 20 transferred credits from other reserves, and 81 reported no experience, so you see the practice recommended here is prevalent and worth consideration by pit and quarry operators large and small. Some business men are allotting the credit on excess-profits tax to post-war reserves, others are contacting outside sources to line up financial assistance for post-war modernization. It is poor policy to wait until you need funds to attempt to get them. Talk to your banker now about your post-war plans.

Some producers carry no reserves on their books at all. Others carry inadequate reserves. Others have reserves adequate in normal time but below par to-day, because our war economy has distorted normal business practices. The first step is to determine where you stand on reserves *now,* then proceed from there. The pre-war purpose of reserves was to record depreciation in order to justify the income-tax deduction for this expense and to see that costs included adequate charges for depreciation. From now until stability returns reserves must cover a wider field. Our war economy has brought this about. Those in this industry should make provisions accordingly.

You can't take credit for post-war reserves on your income tax return but the Congress is being pressed to authorize such deductions. If this is done, the taxpayer who has established post-war reserves should be in a preferred position to get the desired credit. At any rate, deduction or no deduction, the post-war reserve is an essential step in post-war planning. Your plan should include an estimate of deferred costs brought about by the war, post-war modernization, expansion and sales promotion. You may "guestimate" wrong, but some sort of plan is better than wondering what it's all about when the Axis cries quits.

Peace-time production will come back only gradually. For a time the demand for new machinery and other business equipment will exceed the supply. Those who have written off their equipment or overworked the equipment not written off may not be able to get replacements the day after armistice, but those who will be served first will be those who can put their money on the line and post-war reserves will help you get this priority, giving you a big advantage over competition because you will be among the first in

(*Continued on page* 95)

General view of the plant, showing oil-storage tank and rotary drier in foreground. Car-loading elevator is necessitated by elevation of railroad siding above yard level.

Missouri Silica Sand Plant Making Important War Effort Contribution

This Plant is Only One of the Many Non-metallic Operations that have Contributed Materially Toward Victory Without Benefit of Ballyhoo

another ON THE SPOT report

IT IS unquestionably, and, perhaps, unpardonably trite, to point out that the production of war machines is not uniquely a function of shipyards, vast factories, and industrial plants. There is, of course, a dramatic aspect to the fabrication and the assembly of machines that is wholly lacking in the more humble and obscure operations that are performed earlier in the production cycle.

Definitely in the humble and obscure category in so far as war production drama is concerned, the Aubuchon Silica Mining Company of Crystal City, Missouri, is a kind of war plant without portfolio. Totally absent are the superficial hallmarks that have become so intimately associated in the public mind with war production plants: the wire fence inclosures, the guarded entrance gates, the fluttering "E" award flags. Notwithstanding the absence of stage setting, the high-grade, dried silica sand produced by

By WILLIAM M. AVERY

One of the three tunnels opened into silica deposits earlier in the century by father of present owner, who plans operations here in the near future.

this plant is a war material of prime importance in the making of steel, aluminum, magnesium and brass castings.

The company was incorporated early in 1942 and began production in April of that year with a daily capacity of 100 tons. The sandstone deposit, which is being mined by the open-pit method, is a very loosely-bonded formation analyzing 98.90 per cent. silica, 0.28 per cent. titanium oxide, 0.26 per cent. aluminum, and 0.18 per cent. calcium oxide, with a bare trace of iron oxide showing. The low iron-oxide content makes the material particularly suitable for use in the manufacture of glass.

The present working face of the quarry is about 40 feet high and 150 feet long. Since the face is worked on three separate benches, the 12-foot deep blast holes are drilled with Ingersoll-Rand jackhammers using air supplied by a Davey 110-cubic foot portable compressor. Atlas 40 per cent. ammonia - base

dynamite is used for blasting. A Byers No. 55 gasoline-powered shovel with a ½-cubic yard bucket loads the material from the quarry floor into a Ford dump truck, which makes the short haul to the plant and back in about 10 minutes.

The truck dumps into a steel hopper from which the sand flows by gravity into a 48-inch diameter by 8-foot length rotary screen fitted with 1¼-inch wire mesh. Some indication of the extreme softness of the formation is furnished by the fact that all the material passes through the screen; there is, in fact, no provision for removing oversize from the screen. From the screen the sand drops into a second steel hopper, from which a rotary-type feeder expels it at a controlled rate on a 24-inch by 32-foot General inclined belt-conveyor which is equipped with a Goodyear belt.

The material is discharged by the conveyor into a 5½-foot diameter by 30-foot length rotary drier which is fired by an Enterprise 100 G.P.R. oil burner. An American Blower No. 60 Sirroco fan is connected to the feed end of the drier to supply induced draft; the fan exhausts into a hood built over the feed conveyor and by this means the fines picked up in the drier are recovered.

The sand is discharged from the drier at a temperature of 250 degrees F. into a 40-foot bucket-elevator which feeds a 3-foot diameter by 30-foot length rotary screen located above the storage bin. Most of the material readily passes the 30-mesh cloth with which this screen is fitted, and drops directly into the 150-ton storage bin; the small amount of oversize passes through a Gruendler pulverizer.

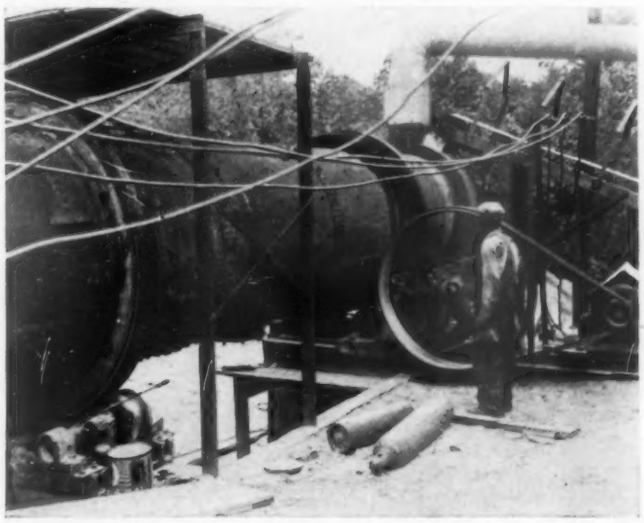
Both open-top and box cars are loaded by means of a 28-foot bucket-elevator which is fed by gravity from the bin. For box-car loading the elevator discharges through a closed chute into the feed hopper of a Stephens-Adamson Sinden box-car loader.

Although no major equipment additions have been made to the original plant layout, production has been gradually increased to 300 tons per day. The 7 men employed work an 8-hour day 6 days per week, and the plant is able to operate 12 months in the year.

Sand is loaded into box-cars by means of a Sinden box-car loader fed through a chute from the plant elevator.

There is at least a 5-year supply of high-grade silica sand at the plant's present location and in addition the company has recently purchased a 150-acre deposit near by. This property, known in the locality as Rock Fort, was mined underground from 1904 to 1916 by the present operator's father, who also opened a silica mine at Crystal City which is now owned by the Pittsburgh Plate Glass Company.

E. M. Aubuchon is president of the company and E. J. Aubuchon is vice-president.



• Left—A ½-cubic yard gasoline shovel loading a truck at the pit.
Right—View of the 5½- by 30-foot rotary drier.

Priority (*from page 93*)

a virgin field to utilize the latest developments in productive equipment.

Circumstances alter cases. Every operator must plan and finance his post-war program in line with his special needs. We do not attempt to give a specific routine in this article, merely to set you straight on reserve accounting so that you will include it in your post-war business curriculum and handle it properly at a time when it is so vitally important.

If post-war reserves help swell my liquid funds now, why not freeze this portion of my cash, you may ask? O.K. Open an account for the desired sum, call it, "Fund for post-war modernization and promotion," set aside a percentage of sales or cash from other sources monthly and invest this money in war bonds until needed.

Socony-Vacuum Sponsors "Information Please"

Socony-Vacuum Oil Company, New York, on February 12, assumed the sponsorship of "Information Please," nationally famous radio quiz program. It is being broadcast over the N.B.C. network, on a chain of 132 stations extending from coast to coast, Monday nights at 9:30 p.m. Eastern wartime.

Developments in the Manufacture of Better Refractories for the Portland Cement Industry*

—By LEOPOLD TSCHIRKY
General Refractories Company

Part Four

another P and Q exclusive

OFTEN a question is raised as to the most desirable thickness of burning-zone lining to install. This is a matter that is closely allied to the subject of protective clinker coating mechanics. In addition, it also involves consideration of the insulating effect of the refractory lining. In some cases it may also involve consideration of the effect of reducing or enlarging the effective area of burning-zone cross-section and what effect this would have on kiln output. Viewed simply as a refractories problem it should be remembered that protective clinker coating will not build up, or remain, on the lining unless the temperature at the working face of the brick is kept lower than the fusion temperature of the low-fusing mix of clinker and brick. If, when fire-clay brick or high-alumina bricks are used, that condition can be reached with a certain thickness of lining, little or no benefit can be expected from an increase in that thickness. The added thickness would serve as undesirable insulation and would soon be lost during the initial coating-up period. This has been demonstrated many times in actual practice where it has been found that the most generally satisfactory fire-clay brick and high-alumina brick linings are those of 6-inch thickness. However, a few plants prefer 9-inch thick linings, but they are decidedly in the minority and no doubt have operating conditions, in so far as protective-coating characteristics are concerned, that work in their favor.

However, when basic brick linings are used, the matter of maximum thickness of lining that can safely be employed differs, in that basic brick will not form mixes with cement clinker that fuse at temperatures reached in a cement kiln. Therefore, such linings can be expected to build up a protective clinker coating even though insulated by a heavy thickness of lining. Several cement plants confronted with severe burning-zone conditions have changed from 6-inch thick to 9-inch thick basic-brick linings and are pleased with the change. This ability of basic-brick linings to take a protective clinker coating, even though increasing lining thickness results in added insulating effect, leads to the subject of the possibilities of worth-while insulation in the burning-zone.

There has always been a desire to insulate the lining in the burning-zone. This is understandable if we can accept as reasonably correct the figures on heat losses that have been mentioned from time to time by persons who should know. Some estimate that the heat loss through the entire kiln shell, when the lining rests directly against the shell, is as high as 15 per cent. Some estimate that it exceeds 20 per cent. All seem agreed that the zone of greatest loss is the burning-zone section. Furthermore, the statement is frequently made that of all the B.t.u.'s that can be conserved throughout the length of the kiln, none could be put to better use than those conserved in the burning zone, because so large a percentage of the total B.t.u. input is required properly to condition the load before it makes its entry into the burning zone.

Insulating the Burning Zone.—Whether these statements are correct or not, the fact remains that maximum heat conservation is a desirable goal to try to achieve and so it may be interesting to mention here what one refractories manufacturer has done in the direction of insulating the burning zone.

It is useless to consider insulation within the burning zone when fire-clay bricks or high-alumina bricks are used as the lining material. This is obvious when it is recalled that mixes of such brick and clinker can be formed which will fuse at temperatures much below those employed to burn clinker. The problem was unapproachable until unburned magnesite bricks and their high fusion properties in the presence of clinker made their appearance. The early difficulty was to find an insulating lining material of satisfactory physical strength capable of withstanding the severe conditions such a lining is subjected to, and do so in a manner to assure mechanical stability in the refractory lining. One installation was made laying up the unburned-magnesite brick lining over an insulating lining in the manner that insulated fire-clay brick linings are usually installed in intermediate zones and cold zones. This lining collapsed after but a few days' operation. The cement-plant manager, the insulation manufacturer and the refractories manufacturer all realized at the outset that this installation was a gamble, and so the early collapse, while disappointing, was not wholly unexpected. Several theories were advanced as to the cause of failure, but all converged on the failure being due to conditions of a nature which satisfied the refractories manufacturer that he should continue with the idea. He then designed a brick as shown in Figure 14. This design permits the unburned-magnesite brick to rest against the kiln shell on two legs and makes provision for the insertion of insulating blocks between the refractory blocks and the kiln shell in a manner that relieves the insulating material from any strain.

Such a lining, using insulating blocks of the same kind of insulating material as was used in the initial experiment, was installed in an 11-foot diameter kiln early in 1939. The installation was made in a plant that was already using 17½-foot long linings of 6-inch thick unburned-magnesite brick in the severe portion of its kiln's burning zone. It was decided to place the special insulated lining in the zone of most severe service, so it was placed in the center of this 17½-foot length. The insulated portion was 10½ feet long and it fell right over the front tire.

The insulated lining was found to take on a protective clinker coating just as readily as the uninsulated lining, and just as good a coating. The insulated lining performed satisfactorily in every respect. The life

*Presented before the Technical Committees, Portland Cement Association, September 19, 1944.

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THROUGH the scientific selection of correct types of man-made rubbers and reinforcing materials, Republic technologists today are constructing conveyor belts for specific uses. Sharp, heavy rocks demand one specification, sand and aggregates require another—each requires specific properties, resistance to abrasion, to tearing and cutting, to impact or shock. Republic has studied each type of service and builds the necessary qualities into each Republic belt at the factory.

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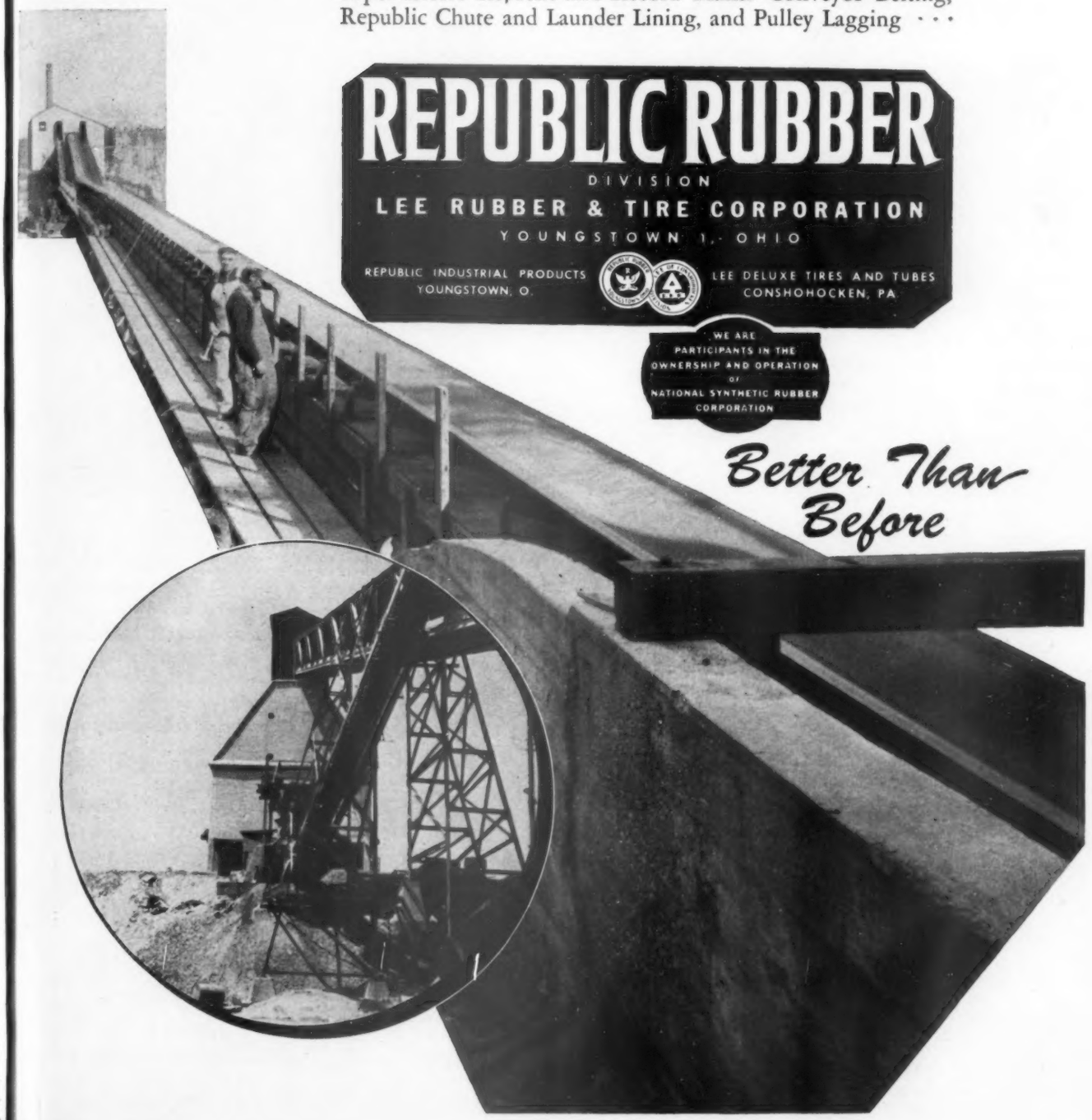

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was 655 actual operating days, the same as the life of the adjacent uninsulated sections.

Two months after starting up the shell temperatures were measured on the insulated lining, as well as on comparable positions of another kiln which was lined with unburned-magnesite brick 6-inch thick lining directly against the kiln shell. The temperatures reported were as follows:

INSULATED LINING—KILN "A"
332° F. average

Opposite Sides
- 5 feet ahead of tire — 280° F.
- 5 feet ahead of tire — 340° F.
- 4 feet ahead of tire — 390° F.

Opposite Sides
- 3½ feet back of tire — 420° F.
- 4 feet back of tire — 230° F.

UNINSULATED LINING—KILN "B"
438° F. average

Opposite Sides
- 4 feet ahead of tire — 460° F.
- 4 feet ahead of tire — 480° F.
- 5 feet ahead of tire — 400° F.

Opposite Sides
- 5 feet back of tire — 370° F.
- 4 feet back of tire — 480° F.

When comparing the above figures it should be remembered the insulated lining was but 10½ feet long and that the adjacent lining on either end of it was uninsulated. It is reasonable to assume, therefore, that a considerable amount of the temperature determined on the insulated shell can be attributed to heat conduction from the immediately adjacent uninsulated shell. Furthermore, kiln "A" had previously always been considered this plant's "hottest kiln" and kiln "B" its "coolest kiln." The reason for this was that kiln "A" is at the end of the battery of kilns and right alongside the kiln building's solid brick wall, whereas kiln "B" is at the other end where it receives the benefit of the cooling action of a multitude of open windows and doorways. This was not just a matter of assumption, because several years earlier a series of shell-temperature readings was made on these two kilns and, when the temperature readings were averaged, those taken on the shell of kiln "A" were 55 degrees F. higher than those taken on the shell of kiln "B".

But not satisfied that this type of lining held out the best possibilities from the standpoint of efficient insulation, the refractories manufacturer made further developments that resulted in a combination of unburned-magnesite bricks, insulating bricks and metal plate (this metal plate being always used between unburned-magnesite bricks) *all in one piece*. This design is illustrated in Figure 15.

Two such linings were placed in service. One did not last long, but here the difficulties were of a nature not to detract from the design or general idea. What was learned will be put to good use when later installations are to be undertaken. The second lining, however, gave a very good account of itself. Coating characteristics were excellent and its life was 392 days actual operating time.

Unfortunately just as it appeared that all was ready to go further with this type of lining, the war demand on the manufacturer of the insulating bricks used made it impossible to obtain more of the insulating bricks required. So further installations and developments are temporarily delayed.

Intermediate or Calcining Zone. —Until quite recently little attention was directed to this zone, where formerly a good grade of high-heat-duty fire-clay brick served the purpose very well. However, intermittent operating conditions, brought about by a fluctuating demand for kiln production and sometimes by "spread the work" or "short-week" operating schedules, coupled with the trend toward higher kiln temperatures generally, has frequently resulted in a refractory problem of considerable proportions. In some cement plants it became as important a refractories problem as that in the burning zone.

The condition of the load material and the temperatures normally encountered in the intermediate zone are not what result in the formation of protective coating on the lining. What coating does form on the lining is usually an unpredictable, unstable, coating in a relatively short length adjacent to the burning zone, and here the same general principles are involved as those described in relation to burning-zone refractories. The major length of the intermediate-zone lining is bare of any coating whatsoever, except what little powdered load material adheres as the kiln rotates. This is so slight that it can be disregarded in so far as the effect on lining is concerned.

So for all practical purposes, the refractory lining in the intermediate zone can be considered as bare brick subjected to temperature conditions that make spall resistance a major consideration. This takes on added importance when the lining is subjected to the sudden wide temperature changes brought about by intermittent operation. For this reason super-duty fire-clay bricks are becoming increasingly popular for intermediate-zone lining and have, in many instances, helped materially to improve lining life in this zone.

Super-duty fire-clay bricks represent the highest point in the development of strictly fire-clay brick. They are very hard-burned and are characterized by high density and volume stability, which contribute to increased resistance to spalling. Their greater volume stability and materially better spall resistance give them a decided advantage for severe intermediate-zone service over the fire-clay bricks which formerly were

Figure 14.

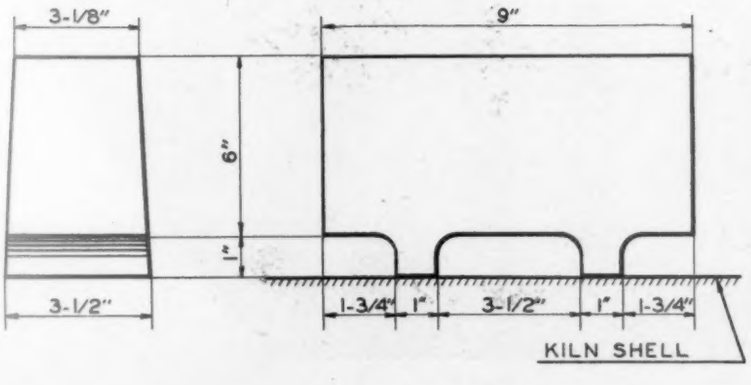
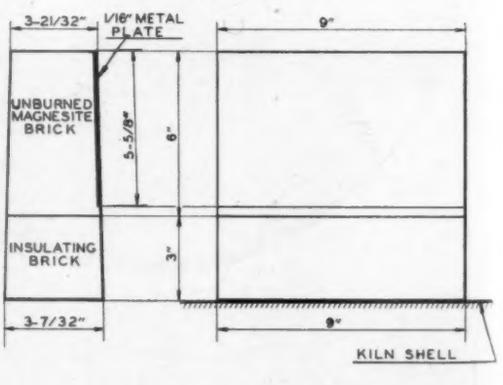
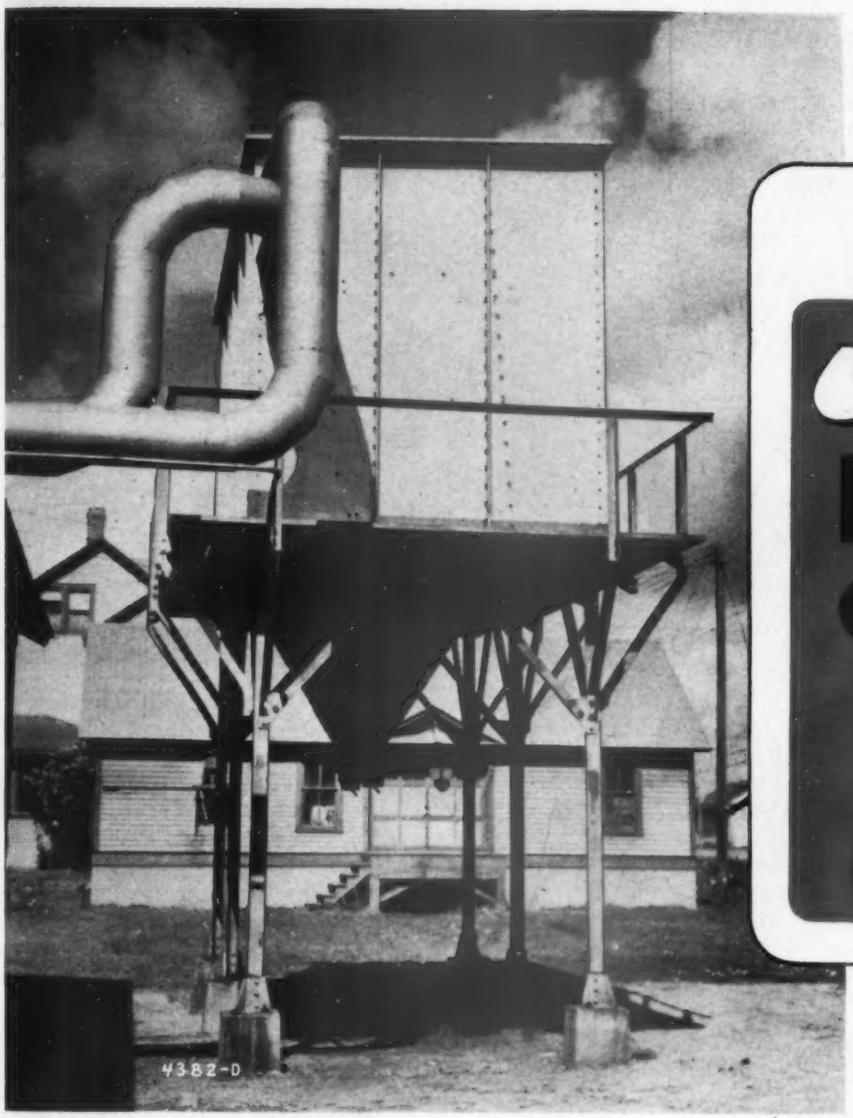


Figure 15.





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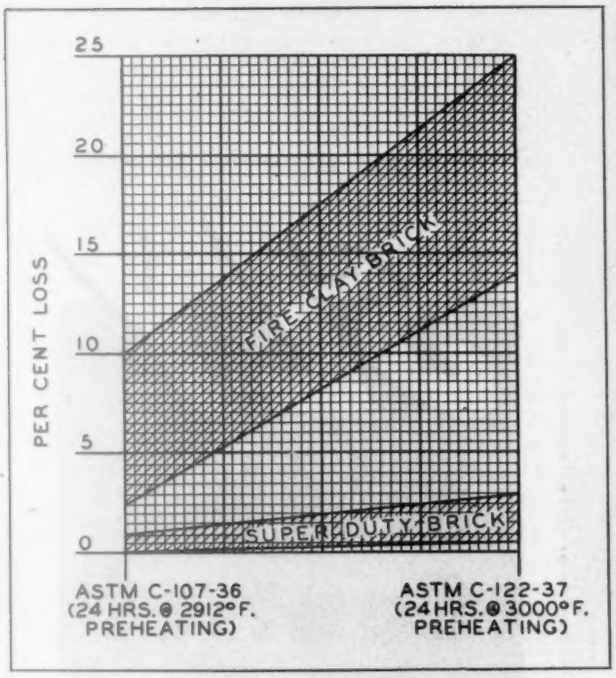

Figure 16.

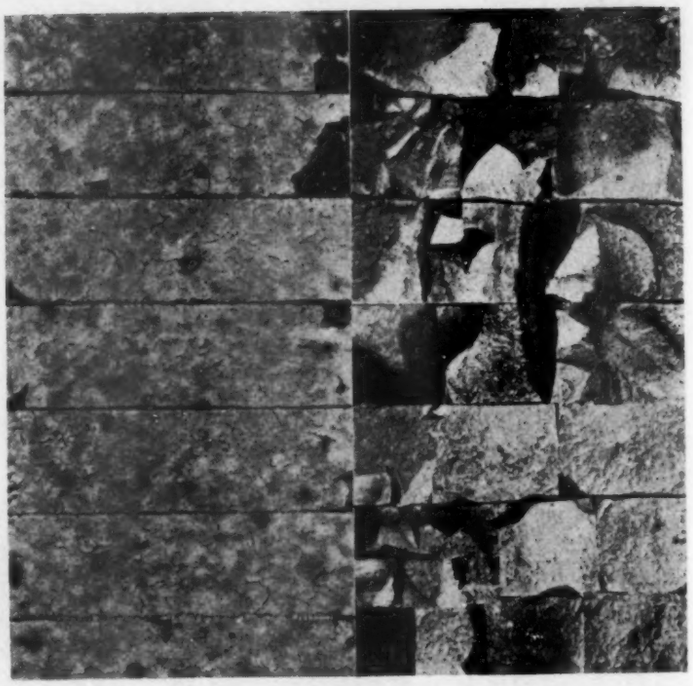

Figure 17.

standard for use in this zone. Figures 16 and 17 illustrate the superior spall resistance of super-duty fire-clay bricks over regular first-quality fire-clay bricks.

Figure 17 illustrates comparable results obtained in the A.S.T.M. panel spalling test. On the left are shown a well-known brand of super-duty fire-clay bricks and their condition is to be compared with a good brand of first-quality fire-clay bricks shown on the right. In the test the super-duty fire-clay bricks lost less than 1 per cent. by weight, whereas the fire-clay bricks lost about 18 per cent. by weight.

Important as these considerations are for linings laid directly against the kiln shell, they become more important for linings laid with insulation between the refractory and the kiln shell. Linings so insulated require a refractory possessing both excellent volume stability and spall resistance. When insulated linings are brought up to operating temperature, there is less chance for dissipation of heat through the lining and kiln shell with the result that there is less expansion in the kiln shell. Therefore, the greater the volume stability of the refractory the less will be the pressure exerted on the insulating lining if the kiln temperature should become excessive. Furthermore, when the kiln is shut down the insulated hot refractory lining does not have the benefit of the cooling action through the kiln shell in anywhere near the degree enjoyed by an uninsulated lining, with the result that the cooling is not as uniform throughout the lining thickness. This latter feature calls for maximum spall resistance in the refractory lining.

Recent experiences in several plants that have insulated intermediate zone linings in newly built kilns have caused much attention to be focused on what takes place, or may take place, in such linings and out of the observations and trials now being made it is hoped that through the close co-operation of the cement and refractories manufacturers information will become available to remove some of the uncertainties that now seem to exist.

Cold Zone or Preheating Zone.—We may pass over this zone as it presents no unusual refractory problem unless perhaps in connection with insulated linings. Such problems, however, can be expected to be far less severe than the similar ones in the intermediate zone and as information is acquired which will better the results in the intermediate zone, it is probable that such information will, in some degree at least, be applicable to cold-zone linings.

Drying-Zone and Feed-End Blocks.—Little can be added to the comment already made on these parts of the kiln lining.

(To be continued)

Agstone Consumption Leveled by War Demands

Figures covering the 1943 liming program of the Agricultural Adjustment Agency have now been finally compiled. They show that farmers used a total of 19,030,163 tons of all liming materials for which applications for payment were made under the agricultural conservation program. Although there is no way of knowing how much agstone farmers used without applying for payments it might run in the neighborhood of 2,000,000 tons. Because of production and distribution difficulties brought about by the war, the agency does not anticipate that 1944 will show any large increase over 1943.

The 1945 agricultural conservation program continues to provide payment for the practice of applying agricultural limestone to the soil, so that the stimulus of A.C.P. payments will continue to influence production and distribution. On the other hand, the program requires cash contribution to the cost of conservation materials of at least 20 per cent. of the value delivered at farm. In some areas, these collections will be made by A.A.A. committees while in others the producers and distributors of the material will have to collect from the farmer the difference between the delivered cost and the portion which will be paid by the Government. No effort has been made to evaluate the influence which this change could have in the volume of liming materials used on farms in 1945.

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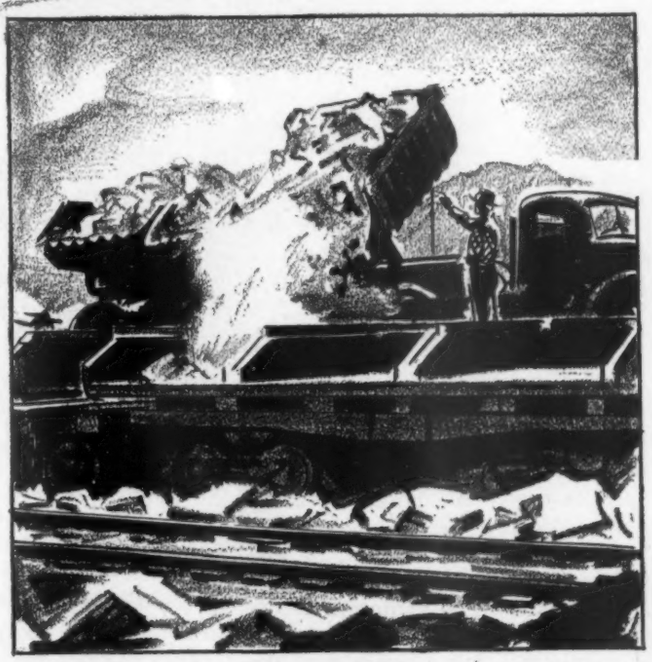

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Proper Lubrication is the Best Way to Reduce Rock-Drill Upkeep

By W. S. FITZ and R. N. BRYAN
Ingersoll-Rand Co., Phillipsburg, N. J.

EVEN in peace times manufacturers of rock drills were continually stressing the importance of proper lubrication; because, as one prominent drill-maker points out, "*correct lubrication is the easiest way to reduce rock-drill upkeep costs.*" Now that the heavy demands of our armed forces have drastically reduced the stocks of drills and spare parts available for civilian use, it is even more vital that these machines be kept in good condition for the duration. Carelessness in normal times, while not excusable, did not always result in severe penalties; to-day it can be fatal. A broken or worn-out rock-drill part may be the factor that slows operations in a quarry or mine that is important to the war effort.

Obviously a high-speed pneumatic drill — whether sinker, drifter, or stopper—must receive an adequate supply of the proper oil if it is to operate satisfactorily. Lack of lubrication nullifies the advantages of quality materials, sound design, and advanced manufacturing procedure. Only a few seconds of operation without lubricant—especially in the case of a new drill—may ruin the machine.

The piston of a modern drill strikes approximately 2,000 blows a minute. It has no rings; therefore it must fit the cylinder closely to prevent the loss of power. When the protective oil film is absent, the surfaces of the piston and the cylinder rub together, friction occurs, and extremely high, damaging temperatures result. This intense heat not only destroys the hardness of the parts, but causes minute cracks which become larger under stress and finally lead to premature breakage.

Below are a few examples of the damage that occurs when lubrication is neglected. We suggest that the reader refer also to the accompanying illustrations. The following paragraphs are numbered to correspond with the numbered parts shown in Figure 1.

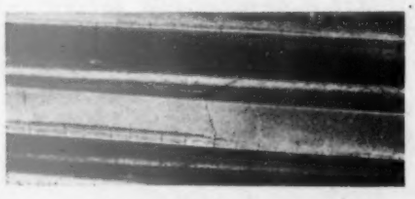

Figure 2. Cracks on a rifle bar that did not receive proper lubrication.

(1) *The Rifle Bar.*—Faulty lubrication may burn this part, causing it to break prematurely (Figure 2), gouge out the rifle nut, and tie up the drill. The bar may also bind in the valve chest or cause misalignment of the internal parts so that the drill stalls easily.

(2) *The Rifle Nut.*—If the machine is run for any length of time without oil, the frictional heat caused by the bearing of the rifle nut on the rifle bar flutes quickly destroys the nut itself (Figure 3).

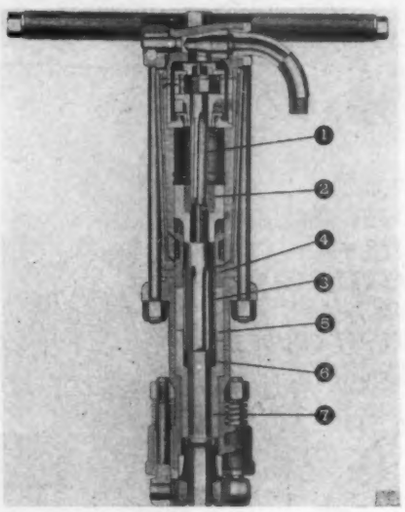

Figure 1. Cross-section of a rock drill. Numbers refer to explanatory text.

(3) *The Piston.*—Because of the small clearance between the piston and the cylinder, oil is necessary to protect these parts. Without it the piston becomes scored, seizure results, and the intense heat of friction causes numerous small checks. Piston breakage often occurs, and the cylinder is frequently damaged. (See Figures 4 and 5).

(4) *The Piston-Stem Cushion Bearing.*—The protective air cushion in the front end of a drill is the result of the close fit between the piston and the piston-stem cushion bearing. Lack of oil leads to rapid wear and the consequent destruction of this close fit. The piston then hits the front head and often causes breakage of through-bolts, front-head bolts and even the piston.

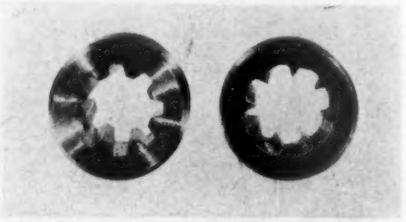

Figure 3. A new rifle nut and one that was worn out by lack of lubrication.

(5) *The Chuck Nut.*—If the chuck nut is not lubricated, it will wear rapidly and impair rotation. It may also burn the piston flutes and cause breakage.

(6) *The Chuck.*—In wet drills the chuck is often subjected to an excessive amount of water, which of course tends to wash out the lubricant. Oil, therefore, must be supplied regularly and in liberal quantity to the front-head parts. Lack of it causes abnormal wear, scoring, seizing, and finally breakage (Figure 6).

(7) *The Shank Aligner.*—If the drill is kept clean and is lubricated correctly, and if dirt is kept off the shank and out of the shank aligner, these parts should give long service. The operator should keep an eye on the drill-steel shanks when they are removed from the drill. If the shanks are covered with oil, it is evident that the chuck parts are receiving ample lubrication. The presence of oil in the air coming from the drill exhaust is also a useful indication.

(8) *The Cylinder.* — The inner surfaces of a drill cylinder (shown, but not identified, in Figure 1) are case-hardened, and the clearance between them and the piston is minute. Lack of oil causes scoring,

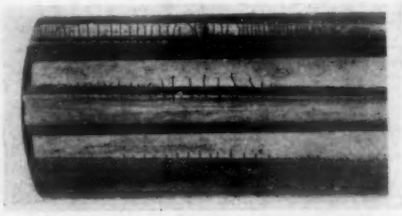

Figure 4. A piston cracked by friction heat, due to lack of oil.

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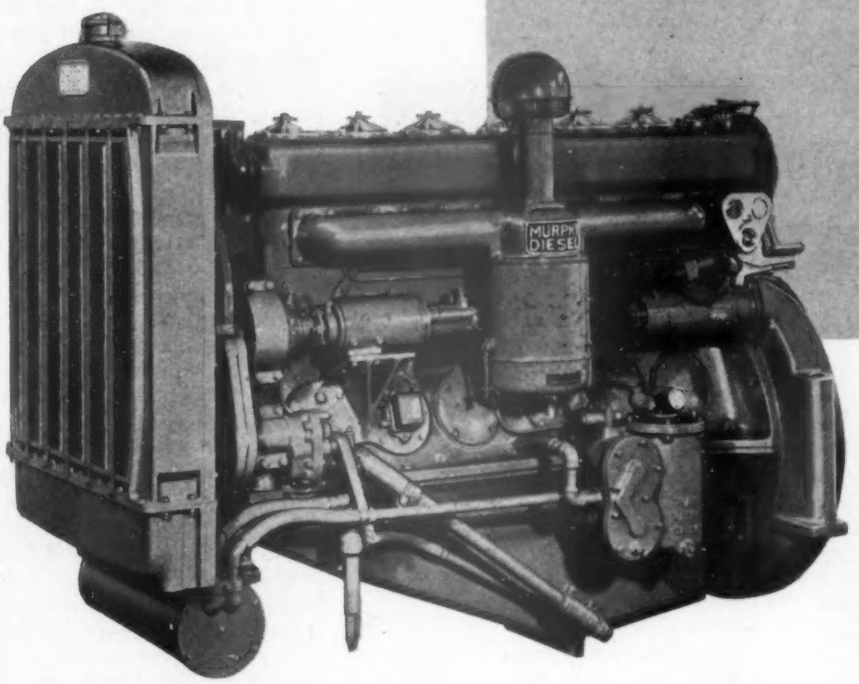

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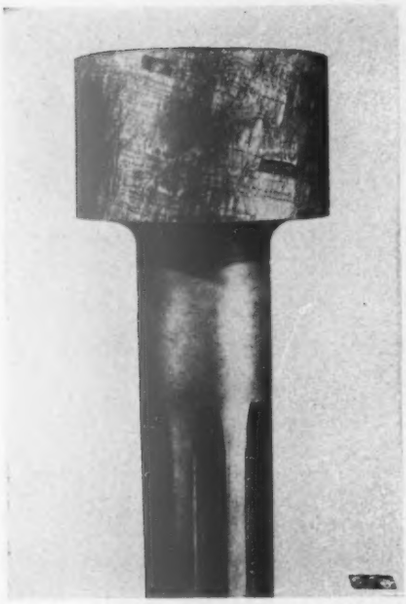

Figure 5. The scoring shown here was caused by lack of oil between piston head and cylinders.

which tends to stall the drill and damage the cylinder (Figure 7).

While it is easy to point out the consequences of faulty lubrication, we should always bear in mind that the human element is an ever-present factor in any operation. No matter how careful an operator tries to be, there are times when he is apt to be forgetful—times when he may overlook the built-in oiling system that is a part of most rock drills. The design of these systems is such that a small quantity of oil is regularly injected into the live air stream; and this device is foolproof *if* the reservoir is kept filled with lubricant. But, it should be remembered, the reservoir requires refilling every two or three hours of operation, the actual time depending upon the size of the machine and the kind of work it is doing. When refilling is forgotten or just neglected, the drill runs without lubricant and trouble begins. For this reason most manufacturers recommend, in addition, the use of air-line lubricators (Figure 8), which hold considerably more oil than the built-in systems of the rock drills themselves.

Figure 6. Section of chuck, left, that was scored by lack of lubrication.

The air-line lubricator is not a recent innovation, and for that reason it does not warrant a detailed description in an article of this character. However, there are certain points that need to be checked periodically, and if these routine precautions are followed, the device will prove a veritable watchdog for the lubrication of rock drills:

(1) Keep the air-line lubricator filled with the correct kind of oil. (The type of oil is vitally important, and this will be discussed later.)

(2) Inspect the lubricator frequently, removing any pipe scale, dirt, or particles of rubber hose that may have been carried in by the compressed air.

(3) Check the oil-feed regulating mechanism. A simple method of testing and regulating is to connect one end of the lubricator to an air line and open the air valve so that oil is sprayed on a paper target placed near the open end of the lubricator. Thus the rate of feed is easily regulated and adjusted.

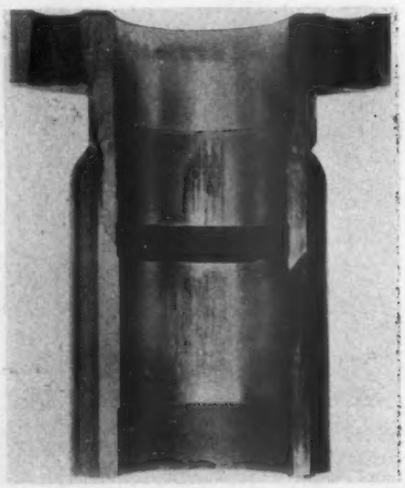

Figure 7. Cross-section of rock drill cylinder scored and cracked.

(4) Place the lubricator not more than 12 feet from the drill it is to serve.

Regardless of how drills are lubricated, it is essential that they be dismantled periodically and inspected. All parts should be washed in a petroleum solvent (kerosene) and given a thorough inspection. All passages should be checked to see that they are open. Immediately after inspection, the parts should be wiped clean and coated with a film of lubricating oil, after which the machine should be reassembled.

Even the best system of lubrication will fall short of the desired results if the wrong kind of oil is used. That brings up the question, "What constitutes a good oil for rock drills?" Gruelling tests

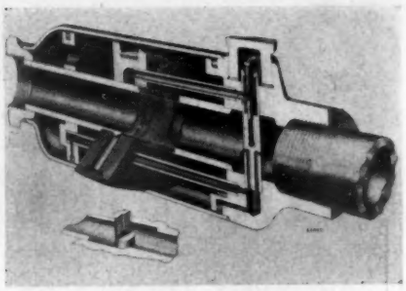

Figure 8. Provision for adjusting oil flow.

have established the following facts:

(1) To stand up under the most severe operating conditions, a rock-drill oil must have a film strength of at least 12,000 pounds per square inch. A lubricant of this type does not break down easily, and a protective film is maintained on all moving parts.

(2) It must flow properly through the system within the temperature ranges encountered.

(3) It must emulsify when mixed with water. An oil that does this will not easily wash off the bearing surfaces of the drill.

(4) It must adhere readily to metal surfaces; otherwise it will not last, nor will it provide good lubrication during its limited term of service.

(5) It must have a high flash-point so that it will not explode and cause carbon.

(6) It must be stored and distributed in such a way that neither dirt nor water can get into it.

It goes without saying that lubrication is not the only key to satisfactory rock-drill operation. It is not a cure-all; it can not undo the harm caused by improper operation and careless handling, nor can it overcome the damage caused by faulty maintenance. Unquestionably, however, proper lubrication outranks in importance all other items that contribute to the life of rock drills. Not only is it the most important; it is also the simplest. It is the stitch in time that saves nine.

Demand for Crushed Fines High in California

As a result of the recently increased demand in southern California for large quantities of crushed fines, principally for black-top paving jobs, the Los Angeles office of the Allis-Chalmers Manufacturing Company reports the sale of several of its Type R gyratory crushers to aggregate producers within the last several months.

In most cases the machines are being installed to follow secondary reduction units.

PERSONAL MENTION

GEORGE J. FREDERICKS as president and director of Consolidated Stone & Sand Co., of Montclair, New Jersey, with which he had been associated for 25 years.

Mr. Fredericks, who is now a resident of Phalanx, Monmouth County, New Jersey, will devote his time to realty business along the New Jersey coast.

ROBERT A. KINZIE, consulting mining engineer, San Francisco, Calif., has been appointed vice president in charge of operations of Santa Cruz Portland Cement Company.

K. F. PETERS recently became resident general manager of the Potash Company of America. He succeeded R. M. Magraw, who retired from his administrative connection with the company on November 30, but remains with it in an advisory capacity. R. A. Pierce, assistant general manager, who was scheduled to succeed Mr. Magraw, declined the post because of ill health; but he, too, will remain with the organization on special work.

G. ELAND STEWART, agent and manager, Billingham Mine, Imperial Chemical Industries, Limited, Billingham, England, was a recent visitor in our offices. His division operates an anhydrite mine 800 feet deep with a capacity of 15,000 tons weekly, from which the Imperial Chemical plants are supplied. Mr. Stewart is in this country to study mining methods and equipment with the idea of post-war changes and expansion in mind.

F. G. MEYERS was recently promoted to superintendent of the Portland, Colorado, plant of the Ideal Cement Company, taking the place of H. L. Lucas who has been acting in that capacity since July, 1943.

Thomas L. Hughes, Western sales manager of the Lehigh Portland Cement Company, Chicago, was recently appointed as "Colonel" on the staff of Governor Willis of the State of Kentucky.

RICHARD F. HOGAN, traffic manager of the Warner Co., Philadelphia, was recently (February 13) elected president of the Traffic Club of Philadelphia.

Z. W. BARTLETT, formerly production superintendent of the Freeport Sulphur Company, Freeport, Texas, was recently appointed general superintendent the company's operations at Grand Ecaille, Louisiana.

E. S. BEEBE, who was formerly superintendent for the Phosphate Mining Company, is now project engineer for the Bureau of Mines. He will supervise the erection and later the operation of the Bureau's Eastern Region sponge iron pilot mine.

OSCAR JOHNSON, president of Mine & Smelter Supply Company, Denver, and head of Idarado Mining Company which is operating the Treasury Tunnel and mines near Ouray, recently reported that the company's new mine, with 300 tons daily capacity, is nearly finished. It was planned to start milling operations before January 1, on a stockpile of ore from the tunnel.

LAWRENCE ROE, formerly research engineer for American Potash & Chemical Corporation, Trona, California, is now research engineer on the staff of the Battelle Memorial Institute, Columbus, Ohio.

E. A. PIERCE, manager of Southern Phosphate Corporation, Bartow, Florida, recently retired. He has been identified with the phosphate industry for 40 years.

DALE L. PITT, president of Colonial Mica Corporation, New York, has resigned because of ill health and has returned to his home in Seattle.

W. A. CONLEY has gone to Bogota, Colombia, to make a survey of limestone deposits for Fabrica de Cemento Samper and to organize its quarry operations.

DON A. DEERE has joined the staff of the Potash Company of America at Carlsbad, New Mexico. He was formerly with the Morenci Branch of Phelps Dodge Corporation.

S. R. MOYER, general traffic manager of International Salt Co., Scranton, Pa., was elected second vice president of the Atlantic States Shippers Advisory Board at a recent (Jan. 11) meeting in Philadelphia.

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OBITUARY

LLOYD EARL LUMPKIN, 47, of Little Rock, Arkansas, died recently. He was associated with the Hermitage Gravel Company and the Arkansas Gravel Company. Mr. Lumpkin was former engineer of materials and tests for the Arkansas State Highway Department; and he later became technical engineer for the Marquette Cement Company in Chicago. He was also connected with Ben M. Hogan & Company of Little Rock. Surviving are his widow and his mother.

WILBERT BIVINS, 70, president of the National Pulverizing Company, Millville, New Jersey, died recently from a heart attack. He was associated in the industry with Clarence Wolf who is president of the New Jersey Silica Sand Company at Manumuskin. Mr. Bivins' death came as a great shock to his family, his friends and to leaders of the sand industry in which he had been active for the past 20 years.

HANS MADISON HANSON, 58, of Minneapolis, assistant superintendent of the Northwestern States Portland Cement Company, died recently from a heart attack. Mr. Hanson was born in Denmark, and came to this country with his parents in 1890. He began work at the cement plant as foreman in 1906. A son, Armand, is the sole surviving relative.

LAWRENCE LYMAN SNOUFFER, 42, of Columbus, Ohio, died recently in his winter home at Naples, Florida. He was president of the J. & L. Snouffer, Incorporated, quarry operators at Dublin, since its incorporation 20 years ago. He is survived by his widow, a son and a daughter.

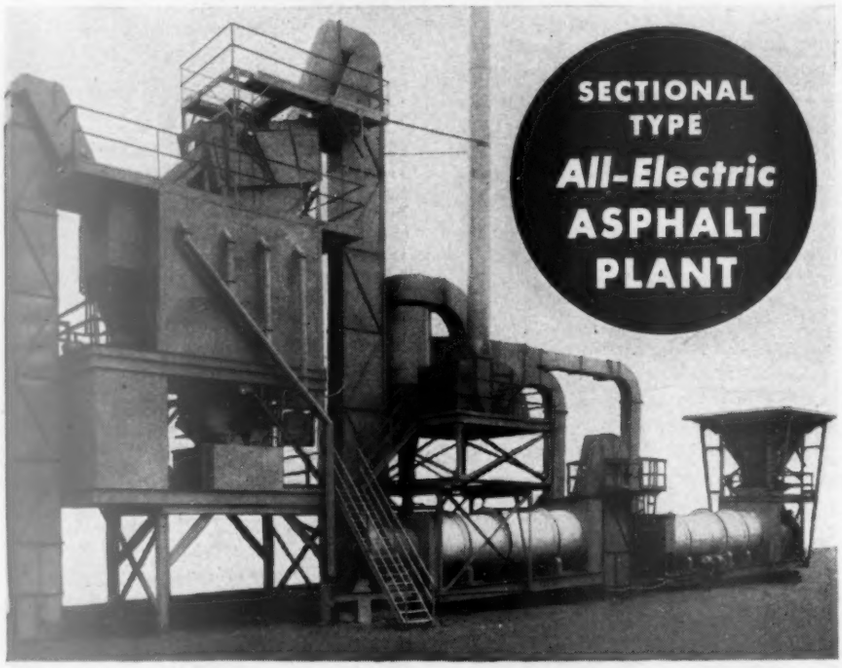
ROBERT E. EDWARDS, 64, Petoskey, Michigan, died recently. He was assistant sales and traffic manager for the Petoskey Portland Cement Company.

HUNTINGTON DOWNER, manager of sales for Basic Refractories, Inc., Cleveland, died February 11 at Fort Lauderdale, Florida, where he had gone to recover his health following an operation last fall.

Born August 22, 1887, at Chittenango, New York, Mr. Downer was graduated from Yale University. From 1910 to 1922 he was connected with the Lackawana Steel Co., after which he spent a year with the Iron Trade Products Co. of Pittsburgh before joining Basic Refractories in 1923.

WILLIAM H. COSTELLO, JR., 48, of Yonkers, New York, died there recently. For more than ten years he was district representative of the Penn Dixie Cement Company. Besides his mother, he leaves a widow, four sisters and a brother.

CHARLES GORDON ADAMS, operations manager of Basic Refractories, Inc., Cleveland, Ohio, died suddenly Monday, February 12, 1945, at his home in Tiffin, Ohio. Death was due to a heart attack He was 43 years old. Mr. Adams joined the Basic Refractories organization in 1943 and had been manager of the company's dolomite quarry and refractories plants at Maple Grove and Bettsville, Ohio. Made operations manager two years ago, he has since then directed all the company's manufacturing operations, both at Maple Grove and Bettsville and at Gabbs, Nevada. He was particularly well known in the quarry and rock



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products industry. He is survived by his widow, a son, mother, and one brother.

CORTLANDT F. AMES, JR., 50, manager of residential building materials for Johns-Manville Corp., died Jan. 18 of a heart attack at the Seaview Country Club, Absecon, New Jersey, where he was attending a meeting of the Insulating Board Institute, of which he was a past president. His office was in New York City and his residence in Larchmont, New York.

MRS. ELLA CLAPP THOMPSON, 74, Bakersvill, North Carolina, owner and operator of a number of mica mines in North Carolina, died recently in an Asheville hospital. Mrs. Thompson came from a family instrumental in establishing western North Carolina as a mica mining center, her father, Elisha Clapp having established the famous Sink Hole mica mine near Bandana, Mitchell county, in 1870. This mine, in which she held the original mineral rights, is still producing. In addition to this, Mrs. Thompson held interest in and operated a number of other mines in the area.

WILLIAM A. RAMBO, for many years operator of a stone quarry in Lower Merion, Pennsylvania, died recently at his home at the age of 81. He is survived by his wife.

WILLIAM M. FABER, JR., 76, who prior to retirement served many years as chief engineer for American Steel and Wire Co., died Feb. 7 in Cleveland.

DODO JOHN CARPENTER, 43, died recently in Findlay, Ohio, following an illness of five months. A former resident of Urbana, Illinois, he had resided in Findlay for the past seven years and was one of the principal stockholders of the National Lime and Stone Company.

GEORGE M. MAHAR, 64, organizer of the Mahar Brothers Slate Manufacturing Company, Incorporated, Fair Haven, Vermont, died recently in the Rutland hospital after a short illness. He is survived by his wife, four daughters, two sisters and three brothers.

WILLIAM H. COSTELLO, JR., 48, for more than 10 years a district representative of the Pennsylvania Dixie Cement Co., died February 7 at his home in Yonkers, New York.

LIEUTENANT PATRICK JOSEPH MCGINLEY, U. S. Marine Corps, who was killed in a plane crash on February 23, 1944, formerly worked as student engineer and salesman for The Ingersoll-Rand Company. He was born at Globe, Arizona, July 30, 1915, and received his B.S. degree in mining engineering from the University of Arizona in 1939. Before and during his student days Lieutenant McGinley did various underground jobs for the Porash Company of America at Carlsbad, New Mexico.

FRED T. SHERMAN, 69, Seattle industrialist and clubman, and part owner and manager of the Independent Asphalt Paving Company, passed away recently. Mr. Sherman came to Seattle 45 years ago as general manager of the Barber Asphalt Paving Company; and he was associated with much of the early paving of Seattle. He was also a partner of the State Gravel Com-

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Legal Decisions

By LEO T. PARKER

●

Employer Not Protected

An employer may conduct different types of business some of which are within the state workmen's compensation act and some of which are not. Numerous employers pay insurance premiums and falsely believe that they have adequate protection. However, all occupations and businesses must be listed with the state board, otherwise protection is not afforded.

For illustration, in *Maley v. Martin Sand & Gravel Company,* 144 Pac. (2d) 558, reported February, 1944, it was shown that an employer was engaged in the sand-and-gravel business. He employed a hoist operator in a gravel pit who requested that he be transferred to run a tractor on a farm owned by the employer in anticipation of early enlistment in the Army. The employee was fatally injured while operating the tractor and his widow sued to recover compensation under the state workmen's compensation law.

Since the employer's compensation policy did not specifically include protection under the occupation of farm work, the higher court refused to allow compensation.

The important element in this higher-court decision is this: Had the employee been entitled to the benefits of the State Workmen's Compensation Law the employer would have been practically immune from a suit for damages. However, under the circumstances the widow may sue and recover damages from the employer.

Fair Trade Act

Contrary to the belief of many persons the Fair Trade Act does not establish any prices. It merely permits manufacturers who desire to do so to enter into contracts designed to control the prices at which its products can be resold by the various dealers. In other words, this law legalizes resale price-maintenance contracts. Legislation such as the Utah Fair Trade Act proceeds on the theory that the sale of a product bearing a trade or brand name for a sum less than the price fixed by the manufacturer, who owns the trade or brand name, is an assault upon the good will of his product.

For example, in *Burt v. Woolsulate, Inc.;* 146 Pac. (2d) 203, reported April, 1944, it was shown that a manufacturer of Woolsulate rock wool entered into a contract with a sales agent by the terms of which the agent could purchase Woolsulate from the manufacturer at a price of $32.50 per ton, f. o. b. the latter's plant. Later the manufacturer refused to sell Woolsulate to the agent at the agreed price or at any price less than $37.50 per ton. The agent sued the manufacturer for damages.

In justification of this refusal to sell in accordance with the express provisions of the contract, the manufacturer alleged that the contract was illegal and unenforceable in that it was in violation of the Fair Trade Act and the Unfair Practices Act. The higher court refused to agree with this contention, and said:

"The Unfair Practices Act was not designed to compel manufacturers and producers to sell to everyone at the same price. The fact that the manufacturer sells to one at a price of $37.50 per ton does not make all sales contracts at prices below $37.50 per ton illegal and void. It is not every discrimination in price that is outlawed by the act, but only those which tend to substantially lessen competition or tend to create a monopoly."

Wife Not Dependent

A majority of state laws provide that no compensation shall be payable under the workmen's compensation law to a widow, unless she is living with her deceased husband at the time of his death, and dependent upon him.

For example, in *Bulman v. Lyman-Richey Sand & Gravel Corporation,* 13 N. W. (2d) 403, reported May, 1944, it was shown that a person named Bullman was in the employ of the corporation, operating a pump on a boat pumping sand and gravel from a pit or lake, in which the boat was floating. One night, while walking from the boat to the shore to get some lacing to repair a belt, he fell off the pipe line into the lake and drowned. The weather was unseasonably and extremely cold on this particular night, the temperature being near zero, and while one of the crew, who heard the splash when he fell in, threw a rope to him, he was not able to grab it and his body was recovered about midnight. There is no question but that this fatal accident arose out of and in the course of the employment of the deceased with the employer. A petition was filed by the widow, and her minor daughter, to recover compensation under the state workmen's compensation law.

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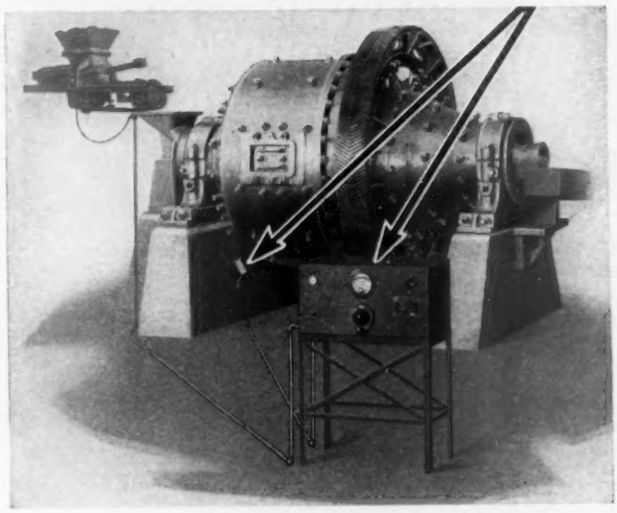

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Since the testimony proved that at the time of Bullman's death he was not living with his wife and that neither the wife nor daughter was dependent upon him, the higher court refused to allow compensation. The court said:

"The deceased husband contributed very little, if anything, to the support of his wife and children, and the wife has been able to support herself and children during the past seven years, without any assistance from him. She is not a dependent upon him in fact or in law, and neither is the minor daughter."

Storage Liability

If the owner of equipment rents storage space on a monthly basis a "bailment" exists, and the "bailee" is liable for negligent loss of or damage to the merchandise.

For illustration, in *Quinn v. Milner,* 34 Atl. (2d) 259, reported February, 1944, it was shown that a bailee took possession of equipment for safekeeping, but it was stolen. The owner of the equipment sued the bailee. In holding the owner entitled to a full recovery, the higher court said:

"The fact that he paid a fixed monthly fee instead of paying each time he used the lot did not alter the relationship. It was a bailment."

Total Disability

Payments specified by workmen's compensation laws for "total disability" greatly exceed the usual payments for the loss of a finger. However, modern higher courts hold that the loss of a member, as a finger, may result in total disability of workmen who perform special kinds of services. In other words, the courts hold that the *degree* of injury makes no difference if the injury is sufficient to disable one from performing the work he is accustomed to perform.

For example, in *Jones v. International,* 11 So. (2d) 555, it was shown that the index finger of a man was seriously injured while performing his duties as stone mason. He sued for workmen's compensation on the theory that from the accident he has been rendered *permanently totally* disabled to do work of any reasonable character. The higher court allowed compensation based upon *total* disability, and said:

"It is equally as well settled that the provisions of the act establishing a schedule of compensation payments for the loss or loss of use of specific members of the body have *no* application in cases where total disability results from the loss or serious impairment of a member of a workman who does manual labor for a livelihood."

Patent Not Allowed

No person may obtain a patent unless his invention is new. In other words, if the Patent Office examiner locates a prior patent showing a similar invention, no patent will be granted the new inventor.

For instance, in *In re Poupin,* 140 Fed. Rep. (2d) 1008, reported March, 1944, it was shown that an inventor filed an application for a patent for a crushing apparatus for crushing stone which comprises a large member having a conical cavity therein and an interiorly located cone-shaped member which revolves within the cavity. The two members are arranged with their axes out of alignment, and means are provided for rotating the members at the same angular speed and in the same direction. The material to be crushed is fed into the space between the members at the upper side, the space there being much wider

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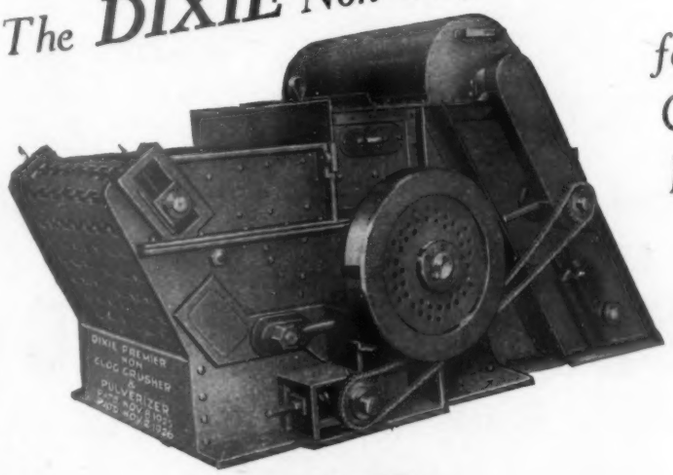

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than the space at the lower side. As the members turn and the material proceeds farther into the device, the space between the corresponding surfaces of the two members decreases, which brings about a crushing or shearing force. The patent examiner refused to grant the patent on the grounds that the invention was old, because a man named Smith had several years previously obtained a patent on a similar invention. The higher court upheld the commissioner's decision.

An interesting example of patent law is found in a leading case where the court refused to grant a patent on a new and successful rock crusher, because in it were used principles of operation similar to those that had been previously used in an ordinary coffee grinder.

Employee Kills Fellow Employee

Generally speaking, an employer is not liable in damages for the negligence of an employee who kills or injures a fellow employee. For instance, in *H. B. Zachry Company v. Fullilove,* 177 S. W. (2d) 980, reported January, 1944, a widow sued an employer to recover damages for the death of her husband who was engaged in oiling a large concrete mixer and he was inside the drum when it was started by another employee. The lower court held the employer liable in $15,000 damages. However, the higher court refused to hold the employer liable in damages, and said:

"We are also of opinion that the evidence was insufficient to show that Johnson was the vice-principal of appellant (employer), so as to render it liable in exemplary or punitive damages for his act, which clearly was not previously authorized or subsequently ratified."

Of course, it is true that the employer may have been held liable if the person who negligently started the machine had been a foreman, official, or boss.

Proof Not Convincing

In all suits involving back wages under the Fair Labor Standards Act the evidence must prove conclusively that the employee is entitled to the amount for which the suit is filed. Otherwise the employee will not be awarded a favorable verdict. For instance, in *Schammo v. Ahlskog,* 146 Pac. (2d) 408, reported April, 1944, it was disclosed that a foreman in a gravel pit sued his employer to recover overtime back wages under the Fair Labor Standards Act. He sought to recover $750 for overtime, $750 for liquidated damages and $250 for attorney's fees.

The testimony disclosed that the foreman worked at the gravel pit from 1930 until he quit July 1, 1939; he had been paid 87½ cents per hour until in 1933 or 1934 when he was paid at the rate of $3.75 per day when the plant was idle and $7.50 per day when it was producing; when the wage-and-hour law became effective, he went back to work at 87½ cents per hour; that this was agreed on but he never got it.

The foreman testified that the regular work-week was 44 hours, but he worked 10 hours per day or more, 6 days a week and some Sundays. His computation was that he had worked a total of 2,160 hours and that of that total 576 hours were overtime.

The lower court held the employer liable but the higher court reversed the verdict because the testimony presented did not prove conclusively that the employee had worked overtime and further that no proof was given that he was entitled to 87½ cents overtime rate per hour, as a reasonable wage for services rendered as skilled laborer and foreman.

Truck Collides with Automobile

Modern higher courts always hold that the driver of an automobile who makes a left turn without exercising great caution and care is guilty of negligence, since such a maneuver is regarded as particularly dangerous. For example, in *Rose v. Cudahy Company,* 12 So. (2d) 717, it was disclosed that a truck driver attempted to make a left turn as another automobile was about to pass on the truck's left. The owner of the automobile sued the owner of the truck for damages. The truck driver admitted that he did not see the damaged automobile before the collison. The court held the owner of the truck liable, and said:

"It is well established that the driver of an automobile is presumed to see that which he *should* have seen."

What Is Permanent Employment?

Modern higher courts hold that "permanent employment", as used in a contract for employment, means steady employment, or a steady job for an *indefinite* period. See *Malever v. Kay Company,* 25 S. E. (2d) 436, where a salesman sued his employer for damages. During the trial he testified that he received a telegram from the employer offering him "a regular permanent job" at $50 a week as salesman, but that soon after taking the position he was discharged. The higher court refused to

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allow damages and said that an agreement by an employer to give a "regular permanent job" to an employee is *nothing more* than an indefinite general hiring terminable in good faith at the will of *either* party.

Double Compensation

Frequently, the legal question arises whether the dependents of an employee are entitled to recover full benefits in addition to compensation payments received by the employee before his death. For instance, in *Maone v. General*, 36 Atl. (2d) 195, reported April, 1944, it was disclosed that an employee became totally disabled from silicosis on May 13, 1938. The period of exposure to the hazard of his employment qualified him for compensation under the Occupational Disease Act. Accordingly, for 178 weeks he received compensation under an award for total disability amounting in all to $3,204. After his death on August 13, 1941, his widow filed a claim for herself as widow and on behalf of decedent's dependent son.

A state law provides that the total liability of an employer unto an employee or his dependents shall not exceed the sum of $3,600. Therefore, since the employee had received $3,204 before his death, the legal question presented the court was: Are the dependents of an employee, whose death resulted from silicosis, entitled to compensation to a total of $3,600 regardless of the amount of the compensation received by the employee in his lifetime for total disability from that cause?

In holding in the affirmative, the higher court held that the dependents of an employee dying from silicosis are entitled to the full amount of death compensation *in addition* to the compensation paid such employee during his lifetime for total disability caused by such disease.

What Is "Mining"?

Of considerable importance is the answer to the question whether the term "mining" includes extraction of sand and gravel from the earth. While the term "mining" conveys the idea of extracting minerals from beneath the surface of the earth, by means of tunneling and shafting, many courts have held that the term has a broader significance, and is not limited to that restricted meaning. For illustration, in *Bailey v. Evatt*, 53 N. E. (2d) 812, reported April, 1944, it was shown that Ohio laws, as do those of many other states, provide that no sales tax shall be paid on equipment, supplies, etc. to be used in "mining" operations. The legal question presented the court was whether taking sand and gravel from the earth is a "mining" operation. This court said:

"The production for commercial sale of sand and gravel from natural sand-and-gravel deposits by stripping the surface soil therefrom with a drag-line and removing such sand and gravel from pits with a steam shovel constitutes 'mining'."

Fraud Rescinds Contract

Any fraudulent or false statement made by a seller before the sale of personal or real property is completed entitles the purchaser to rescind the contract. Therefore, false representations regarding the character and nature of the soil or land will justify a rescission of the sale by the purchaser.

For illustration, in *Gould v. Escondido Valley*, 133 Pac. (2d) 448, it was shown that a person decided to engage in a new business. He advertised in a county paper for a tract of land having a good water supply which would be suitable for his intended purposes. Later he was shown property by a real-estate agent who introduced him to the owner. The latter said the land was suitable for the buyer's purposes and the owner made other statements, as: This is good, deep soil, and it is rich soil. The buyer purchased it, with buildings thereon, for $1,880. He expended about $1,500 in making permanent improvements in the buildings.

After several months he discovered that the seller had falsely represented the quality of the soil. The purchaser filed suit against the seller to recover the full purchase price *plus* the money he had expended in making the building improvements. The higher court held the seller fully liable.

Therefore, it is quite apparent that every contracting party has an absolute right to rely on the express statements of a seller. Moreover, the buyer is under no obligation to investigate and verify statements made by the seller.

Salesman Killed

Modern higher courts hold that if an employee is killed or injured while acting outside the scope of the employment, his employer is not liable.

For example, in *Pitchenick v. New York*, 30 Atl. (2d) 40, it was shown that a salesman was killed by an automobile. It was contended that the accident occurred while he was to call on a customer for his employer. However, this contention was not proved and the higher court held his dependents not entitled to receive payment of compensation under the State Workmen's Compensation Laws.

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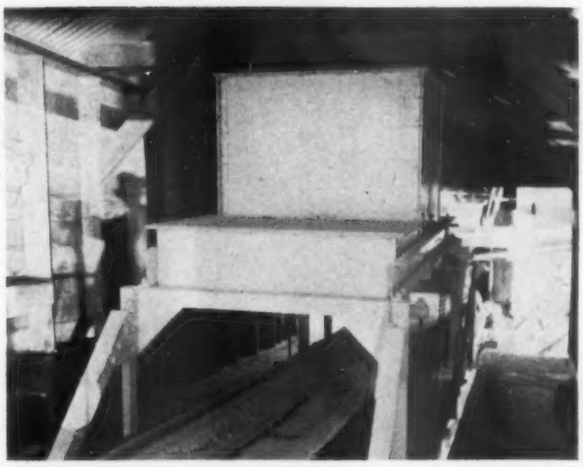

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Such long service life, with low operating and maintenance costs, is typical of MERRICK Scales. Producers who have these precision machines "on the payroll," well know their accuracy and working ability.

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Employer Hires Truck and Driver

Modern higher courts hold that an employee in the general employment of one person may, with his consent, be lent or hired to another for the performance of special work and become the legal employee of the person to whom he is lent or hired while performing such special service. It is true that a person who is in the general employment of one person may, with his consent, be transferred to another for some particular work in such a way as to become the servant, for the time being, of the other in doing that work.

For example, in *Fransen Construction Company v. Industrial Commission,* 52 N. E. (2d) 241, reported January, 1944, it was shown that Stone & Webster were the general contractors in the erection of the U. S. Government's Ordnance Plant near Elwood, Illinois. Elmer Larson had a contract with Stone & Webster to furnish the gravel for this job. Larson, who did no hauling on the job himself, entered into a contract with a man named Fransen, who agreed to haul gravel from Larson's gravel pits to locations in the government reservation wherever gravel was needed and for which hauling Larson agreed to pay Fransen 70 cents per cubic yard. Being in need of additional trucks to haul gravel, Larson communicated with certain other hauling contractors and procured trucks from them, whereupon Fransen agreed to pay such contractors the sum of 50 cents per cubic yard for gravel hauled.

A truck driver on one of the trucks, used to haul gravel for Fransen, was killed. His dependents sued Fransen to recover compensation. The latter contended that he was not liable because he paid the driver's employer 50 cents per yard for the hauled gravel and the driver was not his legal employee. However, the testimony proved that Fransen exercised full control over all the drivers as to the time and manner of their work. Therefore, the higher court held Fransen liable, and said:

"The test in determining whether or not an employee becomes the employee of the person to whom he is lent or hired is whether or not he becomes wholly subject to the control and direction of the person to whom he is lent or hired for the special service being performed. It is impossible to avoid the fact that plaintiff (Fransen) had full power and authority to direct the movement of every load hauled."

Also, see *Allen-Garcia Company v. Industrial Commission,* 334 Ill. 390, where a crane and operator were furnished by Swift & Company to the Allen-Garcia Company for the use by the later. The operator's wages were paid by Swift & Company and, during the time the operator was lent to Allen-Garcia, Swift & Company ordered his return to that company and after a short time he was again returned to Allen-Garcia. All the operator's directions relative to the time for beginning work, the time for quitting and the objects to be moved or handled by the crane were given by agents for the Allen-Garcia Company. The question was by whom the operator on the job was employed. The court found that Allen-Garcia was his employer for the time being.

Therefore, it is quite apparent that a legal employer is one who *controls* an employee, irrespective of whether the legal employer pays the employee's own employer for the services rendered. The matter of control determines who is liable for injuries sustained by the employee, or injuries to others caused by the employee.

Employee Was Negligent

Modern science has disclosed that at least 75 per cent. of the human beings who develop silicosis die of tuberculosis, which may make its appearance at any stage of the disease. However, not always may dependents of a deceased workman recover compensation, particularly if the testimony proves that the employee failed to use care to protect himself against contraction of the disease.

For instance, in *Coburn v. North American Refractories Company,* 174 S. W. (2d) 757, reported January, 1944, it was disclosed that an employee named Coburn died on November 9, 1941, at the early age of 29 years, the victim of tuberculosis of the lungs. He had never worked in an industrial plant of any kind until 1936, when he secured employment as a "grinder" with the North American Refractories Company, which was engaged in the manufacture of refractory brick. While sand, containing silica, was not a component part of the bricks manufactured it was, nevertheless, used by the company in large quantities to prevent the bricks from sticking to the molds, and later, when set to dry, to prevent the layers from sticking together. During the process of burning, in which sand was again used as a separator, some of it ahered to the edges and sides of the bricks, and many of them became warped and lost their shape. To reduce them to the proper specifications, the company maintained a "grinder machine" consisting of two carborundum wheels. Coburn continued in this employment until De-

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cember, 1940, when he was compelled to give up his work on account of ill health. Less than a year later he died.

The dependents of Coburn sued the company and alleged that it was negligent in its failure to furnish him with a reasonably safe place in which to work. Also, it was contended that officials of the company knew, or by the exercise of ordinary care should have known, that the silica dust to which Coburn was exposed by the nature of his work was a dangerous substance, and negligently failed to provide him with well-known and reasonably-safe appliances and equipment so as to make his working place safe.

The testimony proved that when Coburn went to work for the company the grinder machine was equipped with a fan and suction pipe to draw off the dust. Coburn had been furnished with a respirator, but, after a few weeks, *he discarded* it because he found it uncomfortable to wear.

The higher court held Coburn's dependents *not* entitled to recover compensation, and said:

"We do not think that the proof shows acts or omissions on the part of the individual appellees (company) which would render them personally liable. Coburn admitted that he knew that the respirator was to protect his lungs against the dust; and there was much evidence indicating that at least good faith efforts had been made by the company to comply with the statutes requiring the installation of draft and suction apparatus to remove the dust."

Also, see *Kentucky Stone Company v. Philips et al.*, 294 Ky. 576, decided June 4, 1943. Here the court held that injuries to the lungs sustained as the result of the inhalation of emery dust, unless it is the result of an accident, is not compensable under the provisions of the Workmen's Compensation Act of Kentucky.

Questions and Answers

[Mr. Parker will be glad to answer questions regarding legal problems of PIT AND QUARRY readers. Questions should be addressed to Leo T. Parker, Legal Editor, PIT AND QUARRY.—Ed.]

Legal Editor: We do mostly intrastate and a little interstate business. If we do say 20 per cent. interstate business and 80 per cent. intrastate business are we outside the scope of the Fair Labor Standards Act?—P. C. S. C.

Answer: Modern higher courts hold that the amount or percentage of interstate business is not important when determining whether an employer is within the Fair Labor Standards Act. Also, some employees may be within this law and some others not.

If an employee works only one hour a day or week on the hauling, processing or making of interstate goods, the employer must pay wages specified by the Fair Labor Standards Act for the whole week. In one case, for instance, an employer's business was only 2 per cent. interstate, but the higher court held that this employer was within the scope of the Fair Labor Standards Act, with respect to employees who worked on any of this 2 per cent. merchandise. Also, other courts have held that if an employer sells merchandise to a purchaser

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who processes it and makes interstate deliveries, both employer and purchaser are subject to the Fair Labor Standards Act.

Obviously, the law is not applicable if the employer's business is in the retail classification and more than 50 per cent. of his business is intrastate. All employers who transact intrastate business wholly or in a majority are not within the control of this act. Actually the law was put into effect to guarantee those engaged in interstate businesses equal price and competition rights. Therefore, the Fair Labor Standards Act is not intended to affect persons who do intrastate business, which means that they do not sell and deliver goods to purchasers outside the state.

Legal Editor: Recently we gave a contract to a salesman for a special machine. Now the manufacturer, who employs the salesman, demands that we take the machine and threatens suit although we cancelled the contract. Can we be held liable?—G. S. & G. C.

Answer: A source of numerous litigations is found in representations made by salesmen. In fact it is important for you to know what modern higher courts hold as to when a salesman may make a valid and binding contract for his employer. Generally speaking, the higher courts hold that unless the salesman has implied or express authority to bind his employer he can not make valid contracts of this nature.

This is so because a "contract" taken by a salesman is a legal *proposal* of the purchaser to buy merchandise, although the purchaser believes that a valid contract exists. Therefore, if the salesman's employer fails to "accept" the "contract" sent in by the salesman, generally no enforceable contract exists. However, a modern higher court recently held that if a seller neglects to acknowledge or accept a contract sent in by a salesman, a valid contract *may be completed if* the seller ships specially manufactured merchandise.

In *Ludowici Company v. McKinley,* 11 N. W. (2d) 839, reported January, 1944, the testimony disclosed that it was mutually agreed between the purchaser and the salesman that the special amount of merchandise required would cost $2,526. The contract signed by the purchaser and the salesman contained the following language: "This proposal is good for 30 days. Its acceptance will constitute a contract, subject to the approval of our executive department at Chicago."

Subsequently the purchaser never received a letter from the seller approving or accepting the contract. However, the seller proceeded to ship the merchandise. Controversy developed and the purchaser contended that he was not liable to pay for the shipped merchandise because the seller had *not* accepted the order or contract sent in by the salesman.

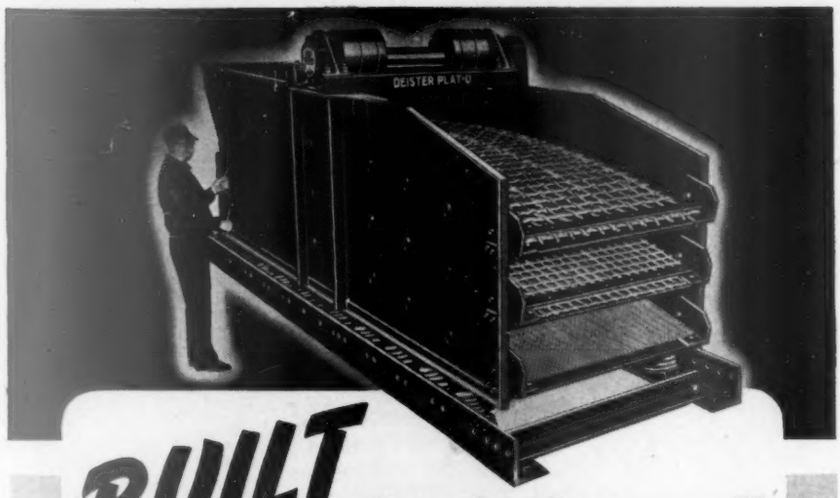
The lower court agreed with this argument and held the purchaser not liable. However, the higher court reversed the verdict and, held the purchaser liable in full damages for failure to accept and pay for the merchandise. According to this new decision a seller need not accept an offer made by a buyer to purchase *specially* manufactured goods which in your case was a machine. If the manufacturer *begins* to manufacture the goods especially for the purchaser, a valid contract is complete. Therefore, it is my opinion that you are obligated to accept and pay for the machine.

Legal Editor: Not long ago a child came onto our premises and was injured while playing on a scraper. The parents are suing us for damages. What are our rights and should we compromise the case?—M.

Answer: All officials should exercise a high degree of care to provide watchmen to guard children against injuries from any and all dangerous sources likely to attract children. For example, in *Collins v. City of Chicago,* 52 N. E. (2d) 473, reported January, 1944, it was shown that in the latter part of October, 1938, a company commenced the installation of a new water main and dug an excavation approximately 30 inches wide and 6 feet deep in close proximity to a public playground. One day while a boy was playing in the excavation a lighted flare tipped over and spilled kerosene on him whereby he was severely burned. He sued for $20,000 damages. The higher court held the boy entitled to a recovery, and said:

"Because of the close proximity of the public playground the watchman should have been extremely vigilant in the performance of his duty to keep the children away from the flares and ditches."

On the other hand, if your premises are not in close proximity to a highway or public street the higher court will hold in your favor since, under the circumstances, the child could not have been attracted to the scraper unless he first was a trespasser.



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TRAFFIC News Digest

Central Freight Association

Docket 77125 (1).—Industriall sand and gravel as described in Exhibit D. Establish on, from points in tne Coalton, O., Group (14).

Proposed rates (in cents per net ton)

To	(A)	(B)
Omar, W. Va.....	187	165
Dunham, Ky., Republic, Ky.....	209	187

Sup. 1 to WDA 76695.—Sand and gravel and crushed stone, carloads, also on crushed slag, 80 per cent. of marked capacity of car—WDA 76695, DB 3256, dated October 18, 1944, covering proposal to revise rates on, between points in Ohio, for intrastate movement and from Hillsville, Shaw Junction, Walford, Midland, Sharpsville, Penn., and Weirton, W. Va.; to points in Ohio, is hereby withdrawn from the docket on request of proponent.

Docket 77202 (1).—Sand, all kinds, or gravel, in open top equipment, also in box car equipment as provided for in Note 4 of Erie R. R. Trf. 104-K. Establish on, from Geauga Lake and Phalanx, O., to Twinsburg, O., 88 cents per net ton.

Docket 77216 (1).—Sand (except blast, core, engine, filter, fire or furnace, foundry, glass grinding or polishing, loam, moulding or silica) and gravel, in open top cars, carloads, minimum weight 90 per cent. of marked capacity of car except when cars are loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Lawrenceville, Ill. to Vincennes, Fritchton, Ind., 66 cents; Wheatland, Washington, Ind., 72 cents; Black Oak, Montgomery, Cannelburg, Ind., 77 cents; Loogootee, Ind., 83 cents; Martin, Shoals, Raney Spur, Willow Valley, Ind., 88 cents; Huron, Prosser Spur, Ga., 94 cents; Mitchell, Ind., 99 cents per net ton via B. & O. Railroad direct.

Docket 77226 (2).—Slag, crude (the product of iron and steel furnaces), other than crushed, expanded, granulated, ground or pulverized, in open top cars, carload minimum weight 90 per cent. of the marked capacity of car, except when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Canton to Warren, O., 66 cents per net ton to expire June 20, 1945.

Docket 77247 (1).—Sand and gravel, carload, minimum weight 90 per cent. of marked capacity of car except where car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from LaFayette, or Shoals, Ind., 138 cents per net ton via C. I. & L. to Mitchell, Ind.; B. & O. Railroad.

Docket 77261 (2).—Stone, crushed, in bulk in open top cars, carload. Establish on, from Speed to Bicknell, Ind., 138 cents per net ton.

Docket 77266 (1).—Slag (a product of iron or steel furnaces) in bulk in open top cars, minimum weight 90 per cent. of marked capacity of car, except where car is loaded to full visible capacity, actual weight will apply. Establish on, from

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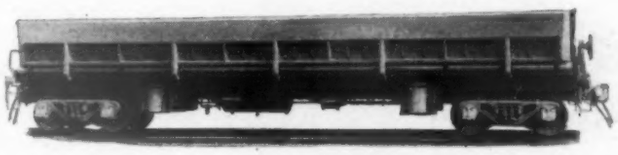

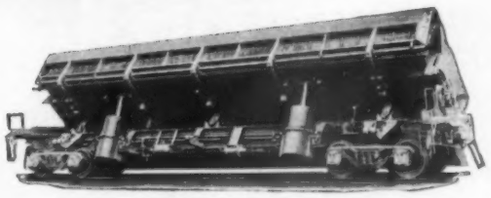

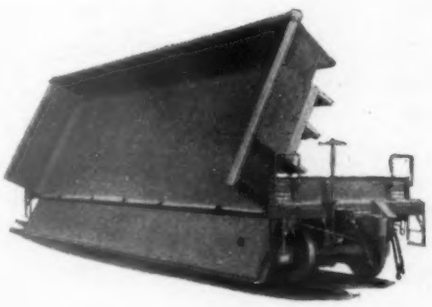

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Other advantages:

The tip new or worn cannot come off the shank as long as the latter hangs on its supporting rotor pin, regardless of the assembly bolt.

But the tip is easily unhooked by spreading the shank halves apart after removing the assembly bolt; and a new head is quickly applied by reversing this operation. The assembly bolt is firmly locked with a standard split cotter.

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Your price inquiries can be answered promptly if you will give the make of your pulverizer and the pattern number on your present hammers.

The features of Amsco Renewable Lip Dippers are covered in Bulletin 641-D.

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Sullivan, Mich., to Richmond, Ind., 160 cents per net ton.

Docket 77267 (2). — Sand (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding, ground, loam, moulding, moulding-naturally bonded, polishing, pulverized or silica) or gravel in open top cars, carload. Establish on, from Warsaw, Ind., to points in Indiana, rates as shown in Exhibit B.

Illinois Freight Association

Docket IRC 511-213. — Stone, viz.: Stone, ground or pulverized, crushed or rough quarried; also strippings of stone quarries, in straight or mixed carload, minimum weight 90 per cent. of marked capacity of car, except when car is loaded to full cubical or visible capacity, actual weight will apply:

To	(1)	(2)	(3)	(4)
French Village, Ill., Belleville, Ill., Lake, Ill., Oak Hill, Ill., Schurman Mine, I..	80	72	86	78

(1) Present—From Krause, Ill.
(2) Proposed—From Krause, Ill.
(3) Present—From Valmeyer, Ill.
(4) Proposed—From Valmeyer, Ill.

Docket IRC-511-215.—Stone, broken, crushed or ground, carload minimum weight 90 per cent. of marked capacity of car, except when car is loaded to capacity, in which case the actual weight but not less than 40,000 pounds will apply, from Hannibal, White Bear, Marblehead, Quincy, Ill., to various C. B. & Q. Railroad stations in Illinois:

To (Representative)	*Present*	*Proposed*
Buda, Ill.	$1.66	$1.32
Wataga, Ill.	1.66	1.21
Burnett, Ill.	1.80	1.43
Wyoming, Ill.	1.90	1.43
Brimfield, Ill.	1.80	1.32
Hagener, Ill.	1.39	1.32
Jacksonville, Ill.	1.94	1.32
Franklin, Ill.	1.94	1.43
Girard, Ill.	2.08	1.43

Docket IRC 511-217. — Limestone, crushed or ground, carload, as provided for in item 5 of Missouri Illinois Railroad Tariff 22-H, I.C.C. F-207, from Mosher, Ste. Genevieve and Marlo, Mo., to C. & E. I. Railroad stations, viz.: Nameoki, Hillsboro, Nokomis, Pana, Mode, etc., Illinois. To establish rates 20 cents per ton over the rates in effect from Valmeyer, Ill.

Docket IRC 511-219. — Sand and Gravel, carload, from Hammonds and Spaulding, Ill.

To	*Present*	*Proposed*
Almora, Ill.; McQueen Ill.; Pingree Grove, Ill.; Starks, Ill.; Hampshire, Ill.; New Lebanon, Ill.; Genoa, Ill.; Kingston, Ill...	65	55
Kirkland, Ill.; Fairdale, Ill.; Monroe Center, Ill.; Davis Jct., Ill..	75	55

New England Freight Association Docket

Docket 63984 (1-a).—To cancel commodity rate $1.98 net ton applicable on sand and gravel, carloads from East Holliston and Holliston, Mass., to Voorheesville, N. Y., published on pages 57 and 59 of New York Central Railroad tariff No. 1911, I.C.C. 416; proposed—6th class rate, minimum weight 40,000 pounds, per Agent I. N. Doe's I.C.C. No. 459. Reason: Obsolete.

Southern Freight Association Submittals

Docket 32556 (shipper: suggested by carrier).—Establish intrastate 102 cents and interstate 112 cents ton, 2,000

pounds, on phosphate rock, carloads, 40,000 pounds, except when marked capacity of car is less in which case marked capacity will govern, Riverside to Nashville, Tenn.

Docket 32575 (shipper: suggested by carrier).—Established joint thru commodity rate on clay, carloads, points on N. C. & St. L. in west Tennessee and Kentucky to Greensboro, N. C., 460 cents net ton in lieu classification 16 or lowest combination which presently governs.

Docket 32585 (shipper; suggested by carrier).—Reduce published thru rate of 808 cents net ton applying on crushed granite, carloads from North Carolina and Virginia quarries to Denver and McClave, Col., shown in Items 13750 through 13805 of S.F.T.B. tariff 388-F I.C.C. 840, to be 766 cents net ton.

Docket 32608 (carrier).—Establish rate 310 cents ton 2,000 pounds on clay or kaolin, Sandersville, Ga., to Knoxville, Tenn.

Docket 32610 (shipper; suggested by carrier).—Establish rate 700 cents ton 2,000 pounds on clay, processed, carload, 70,000 pounds, Jackson, Miss., to Ottumwa, Ia.

Docket 32612 (shipper; suggested by carrier).—Establish rates on phosphate rock, ground or not ground, Florida mines to various points in Illinois on same basis as rates prescribed by I.C.C. to points in Illinois, in docket 28960 (statement of proposed rates furnished upon request.)

Docket 32625 (shipper; suggested by carrier).—Establish rate of 421 cents per gross ton on bauxite ore, carload 60,000 pounds from Abbeville, Ala., to Louisville, Ky.

Southern Freight Association Submittals

Docket 32631 (carrier).—Establish rates on Fuller's earth, carload, Attapulgus, Ga.; Jamieson, Fla., and Quincy, Fla., to Grand Rapids and Lansing, Mich., of 847 cents per ton 2,000 pounds, minimum weight 70,000 pounds and 990 cents per ton 2,000 pounds, minimum weight 50,000 pounds and to Reed City, Mich., 902 cents per ton 2,000 pounds, minimum weight 70,000 pounds.

Docket 32637 (shipper; suggested by carrier).—Establish rate 847 cents net ton, carload, 70,000 pounds and 990 cents net ton, carload, 50,000 pounds on Fuller's earth, Attapulgus, Ga., Jamieson and Quincy, Fla., to Bellefonte, Penn.

Docket 32665 (shipper, suggested by carrier).—Establish rates per net ton on phosphate rock, carload minimum 100,000 pounds, Mt. Pleasant, Tenn., and points taking same rates as follows, viz.: To Philo (Duncan Falls) O., Grays Lake and Lake Zurich, Ill., 425 cents; Hinsdale and Quincy, Ill., Athens and Zanesville, O., 417 cents; Hoopeston, Ill., 359 cents; LaSalle, Ill., 409 cents; Peoria, Ill., 401 cents; Woodstock, Ill., and Marietta, O., 434 cents; Fort Wayne, Ind., 392 cents; Indianapolis, Ind., 343 cents; Jasper, Ind., 293 cents; Kokomo, Ind., and Dayton, O., 368 cents; Peru, Ind., 384 cents; Alliance, O., 450 cents; Canton, O., 442 cents—to alternate with present rates.

Southwestern Freight Bureau Docket

Docket 35568 (2).—Kaolin clay, Crossley and Edgar, Fla., to Crystal City, Mo. To establish rate of 847 cents per ton of 2,000 pounds for application on kaolin clay, carload, from Crossley and Edgar, Fla., to Crystal City, Mo., such rate to reflect the present rate of 770 cents per ton of 2,000 pounds, increased 10 per cent. under Ex Parte 123.

Docket 35570 (2).—Sand and crushed stone, Marquette and Cape Girardeau, Mo., to stations in Illinois. To amend Item 4808-A, S. W. L. Tariff 68-S, by reducing the rate to Bush-Hurst and Clifford, Ill., from $1.10 to $1.05 per net ton and increasing the rate to Gorham, Ill., from 94 to 99 cents per net ton. To also establish rates on sand (except asbestos sand and silica sand), carload minimum weight 90 per cent. of marked capacity of car, except when car is loaded to full visible capacity, actual weight will govern. the same as in effect on crushed stone, from Marquette and Cape Girardeau, Mo., to points in Illinois on the Missouri Pacific and Missouri Illinois.

Docket 35601 (1).—Agricultural Limestone, Flat River, Mo., to Southern Territory. To amend Items 30000 through 30040 of S.F.T.B. Tariff 388-F, I.C.C. 840, so that mileage rates provided therein will apply also from Missouri-Illinois Railroad station Flat River, Mo., via Cairo, Ill., using distance of 125 miles to Cairo, Ill.

Trunk Line Association

Docket 42670 (shipper).—Lime, Common, Hydrated, Quick or Slaked, carloads, from Accord, New York, to New York, N. Y., and Brooklyn, N. Y., stations, $2.86 per net ton with minimum weight of 30,000 pounds and $2.31 per net ton with minimum weight of 50,000 pounds, in lieu of present class rates. Reason: Comparable with rates applying from and to other points.

Docket 42676 (shipper).—Limestone, ground or pulverized, and Stone Dust, carload, minimum weight 60,000 pounds, from Earnest, Penn., to all destinations in Trunk Line and New England ter-

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ritory as per P. R. R. traffic I.C.C. 2194 and 2587, at same rates as now in effect from Blue Bell, Rambo and Swedeland, Penn.

Docket 42702 (shipper).—Lime, Common, Hydrated, Quick, or Slaked, carload, from Accord, N. Y., to various stations on the Pennsylvania, Reading Seashore Lines, rates based 110 per cent. of I.C.C. Docket 16170 Scale, minimum weight 30,000 pounds, and 80 per cent. of Docket 16170 Scale, minimum weight 50,000 pounds, specific destination and rates as per exhibit, copy of which will be furnished on request. Reason: Comparable with rates applying from and to other points.

Docket 42703 (shipper).—Lime, Common, Hydrated, Quick or Slaked, carload, from Accord, N. Y., to various stations on the New York and Long Branch Railroad, rates based 110 per cent. of I.C.C. Docket 16170 Scale, minimum weight 30,000 pounds and 80 per cent of Docket 16170 Scale, minimum weight 50,000 pounds, specific destinations and rates as per exhibit, copy of which will be furnished on request. Reason: Comparable with rates applying from and to other points.

Western Trunk Line New Applications

Docket E-41-664.—Limestone, crushed or ground, C. L. From Valmeyer and Prairie du Rocher, Ill., to Sioux Falls, S. D. Proposed—From Valmeyer 20¾ cents and Prairie du Rocher, Ill., 21 cents per 100 pounds.

Docket No. E-41-666. — Limestone, crushed or ground, carloads. Proposed to establish rates by applying to East St. Louis 35 cents per net ton from Valmeyer and 40 cents from Prairie du Rocher plus present rates beyond to destinations in Minnesota.

Docket No. 41-667. — Limestone, crushed or ground Carloads, from Valmeyer and Prairie du Rocher, Ill., to Newell, Piedmont, Lemmon, McIntosh, McLaughlin, Sisseton, Bigstone City, Orient, Flandreau, Lead, Rapid City, Hill City, Keystone, Hot Springs and Dewey, S. D. Proposed—Publish through rates on the same scale as now published to other South Dakota points. (By shipper.)

Interstate Commerce Commission

No. 25020 Rates on Crushed Stone, Gravel, Sand, and Slag within the State of Ohio. By the Commission. Found that transportation conditions affecting intrastate transportation of the commodities considered from Brink Haven to Mansfield and nearby points in Ohio, and interstate transportation of same commodities from Sharpsville, Pa., and Weirton, W. Va., to points in Ohio were substantially similar; that interstate rates in effect from the West Virginia points to points in Ohio were just and reasonable; that present intrastate rates from Brink Haven to Mansfield and nearby Ohio points were less than reasonable, did not contribute a fair proportion of respondents' revenues, and resulted in unjust discrimination; and that the discrimination could and should be removed by the establishment of intrastate rates from Brink Haven to Mansfield and nearby points in Ohio not lower than rates prescribed in the prior report, 191 I.C.C. 206, as modified by subsequent general rate changes. The report said no order would be entered at present, but that the case would be open for 60 days to permit arrangements between respondents and the Public Utilities Commission of Ohio for the establishment of the rates found lawful. Commissioner Aitchison dissented.

NEW MACHINERY and SUPPLIES

● Mobile Crane

Something new in design and adaptability in the mobile crane field has been built by the Unit Crane & Shovel Corp., Milwaukee, Wisconsin.

The Unit full-vision cab affords the operator an unobstructed view in all directions at all times. The design of this cab has been accomplished without sacrificing weight, capacity, or head room and made possible by the compact design of Unit main machinery. This self-propelled, one-man operated crane is powered by a single engine, either

Full-vision crane.

gasoline or Diesel, and is equipped for multiple yard operations. The rated lifting capacity of the crane is 5 to 7 tons from the 30-foot straight lattice boom, and the 8-foot jib extension will easily handle 4000 pounds. The jib is designed for close-in operations where ordinary angular straight boom lifting would be prohibitive. With this dual purpose boom each cargo hook works independently . . . one hook always available for light, close-up work and the other available for heavy lifts."

● New Crane

The Hyster Company, Portland, Oregon, has developed a crane that is unique in its manner of attachment to a tractor. The hoist is attached to the main body of the tractor while the boom, be it a boom for a crane, dragline, clamshell, shovel, backhoe or skimmerscoop, is backstayed to a mast pivoted at its base. The mast in turn is backstayed to the front part of the track roller frames of the tractor, through an equalizer beam and struts which have flexible connections at both ends. Through this method of attachment, the crawlers of the tractor are permitted unrestricted oscillation and the tractor spring is allowed free movement even while the Hystaway is being used. The principle overturning forces are delivered to the mast and backstay structures and not to the main body of the tractor through the transmission case. This means that loads applied to the boom do not cause the main body of the tractor to move up and down as permitted by the tractor spring nor do such loads prevent the body of the tractor from moving up and down as a result of travel over uneven terrain. The mast and its supporting structures are interconnected with pins so the construction

Hoist is attached to main body of tractor, boom backstayed to a mast.

lends itself ideally to rapid assembly and disassembly.

The Hystaway hoist is not a worm drive unit; it therefore is adaptable to use as a dragline or clamshovel, for which work a worm drive hoist is not well adopted because the latter does not have free spooling drums. The hoist, for the same reason, also adapts itself

RYERSON STEEL IN STOCK

Call Ryerson when you need steel—any kind, shape, or size. Large stocks are available at ten convenient plants. Ask for a Ryerson Stock List—your guide to quick shipment of steel.

Principal Products Include:

Bars • Shapes • Structurals • Plates • Sheets Floor Plates • Alloy Steels • Stainless Steel Shafting • Screw Stock • Wire • Mechanical Tubing • Boiler Tubes • Reinforcing Steels Tool Steels • Babbitt • Nuts • Bolts • Rivets Welding Rod • Etc.

JOSEPH T. RYERSON & SON, Inc.

Plants at:

CHICAGO, MILWAUKEE, ST. LOUIS, DETROIT, CINCINNATI, CLEVELAND, BUFFALO, BOSTON, PHILADELPHIA, JERSEY CITY

BALANCED FLYWHEEL-FAN

Another HIDDEN VALUE IN ALL WISCONSIN *Air-Cooled* ENGINES

Every Wisconsin Air-Cooled Engine is equipped with a high-efficiency fan that is cast integrally with the flywheel. And each of these flywheel-fans is carefully balanced on a combination balancing and boring machine which accurately locates the heavy spots by means of gravity pendulum swing . . . and then takes out the excess metal, as required. Each unit is tested for smooth, free-running balance.

Just another production detail that *removes* a potential source of vibration and needless wear . . . *right at the source!* Isn't that the kind of an engine you want on *your* equipment?

Most H.P. per pound

WISCONSIN MOTOR Corporation

MILWAUKEE 14, WISCONSIN, U. S. A.

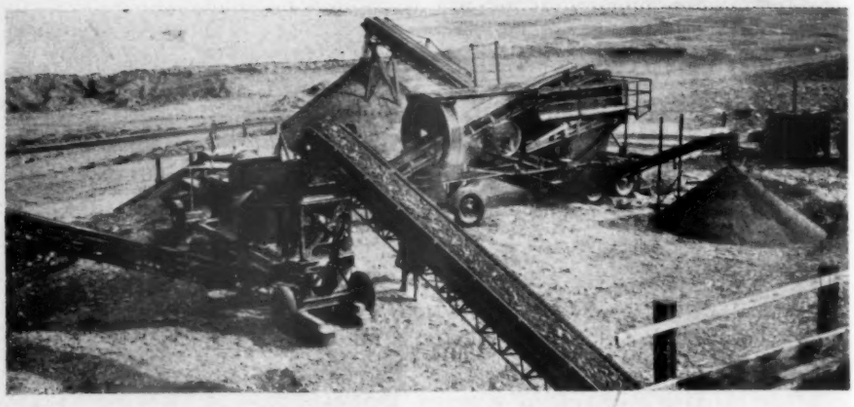
World's Largest Builders of Heavy-Duty Air-Cooled Engines

to a shovel boom and dipper as well as all other conventional shovel attachments.

The hoist is comparable to a shovel in most of its general characteristics. That is, line pull and speed, and swing speed, are the same; handling gear arrangements and manipulation are the same. The drums are free spooling, the same as in shovels; clutch and brake lining areas, gear and shaft sizes, etc., are directly comparable. Within the limits of its 2/3 swing it is, according to the manufacturer, a thoroughgoing dirt moving tool competitive in productive capacity.

● Portable Plant

Developed for either pit or quarry use, the latest Austin-Western portable plants are capable of delivering high tonnages of aggregate in accurately controlled sizes. The output of these plants ranges up to 550 tons of gravel per hour, meeting Federal specifications when crushing 40% to minus 1½" with a single jaw crusher and roll crusher.



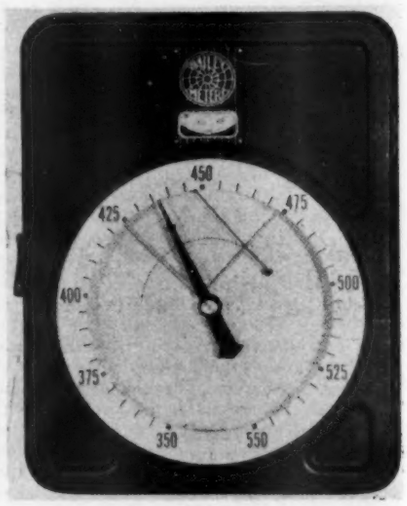
Production of these plants ranges up to 550 tons per hour.

Moving weights are comparatively light. When the units are provided with pneumatic tires and brakes, special permits are usually not required for moving over highways or bridges. These low moving weights are achieved by mounting the crushers on separate units that require virtually no dismantling for transporting other than the removal of one or possibly two short belt conveyors that extend between the different units.

Several different grades of material may be produced simultaneously in the same plant, to meet job specifications, with almost no alterations of the plant. This is accomplished through the use of two, triple-deck 4' x 12' screens which can work in series to more than double the screen capacity found in most portable plants.

● Temperature Controller

An electronic type resistance thermometer suitable for indicating, recording and controlling temperatures between −100°F and 1000°F is announced by Bailey Meter Company, Cleveland, Ohio. This recorder operates on the highly accurate null balance principle and provides instantaneous balancing action by electronic detection and control. The recorder-controller indicates, records and controls temperature. A 29 inch indicating scale which circles the chart may be read easily at a distance of 50 feet. The pointer reading coincides with that of the recording pen. Indicating, recording and controlling mechanisms are all driven by the same reversible elec-



Temperature controller.

Use *Genuine* WILFLEY TABLES for

WET GRAVITY CONCENTRATION

*TO SAVE NON-METALLIC MINERALS

Which One

OF THESE FOUR USES FITS YOUR NEED?

1. Before or after flotation for recovery of coarse mineral not readily susceptible to flotation.
2. For separations (or grading up) from previous table concentration or from original table feed.
*3. For concentrating low grade feeds to produce high grade concentrate for chemical treatment and tailings.
4. For concentrating a middlings feed producing a high grade concentrate and a middlings for regrinding.

MASSCO JUNIOR
Rock Bit Grinder

For the user of a limited number of bits — either detachable or conventional steel. Sold as shown, or, fixtures only for face and gauge grinding with independent bases — usable with any grinder (bit holder included).

Send for BULLETIN 64-B

Other Mine & Smelter Products:

Marcy Ball, Rod & Tube Mills; Rock Bit Grinders & Hot Millers; Pinch Valves; Belt Feeders; Density Controllers; LABORATORY EQUIPMENT & SUPPLIES; MINE & MILL SUPPLIES; COMPLETE MILLING PLANTS.

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SALT LAKE CITY
EL PASO
NEW YORK CITY

The Mine & Smelter Supply Co.

CANADIAN VICKERS, LTD.
MONTREAL
W. R. JUDSON
SANTIAGO, LIMA

tric motor which adjusts the slidewire resistance to balance the measuring bridge. Temperature measuring circuits may be arranged to calculate the sum, difference and ratio of temperatures. Calculated results are recorded directly by Bailey electronic type recorders in the form of news instead of history. Much time and labor may be saved by the electronic calculating method as compared with manual calculation from chart records and log sheets.

● Lubricator

Engineers of Balcrank, Incorporated, Cincinnati, have designed a farm and tractor lubricator that also is suitable for trucks and road-maintenance equipment. Adequately and easily lubricates any

Farm and tractor lubricator

equipment that requires grease to be forced through a fitting, such as mine cars, ditch diggers and conveyors. Other features are: High pressure volume delivery; 30-pound capacity. Ruggedly constructed. Follow plate included to aid in handling heavy viscous greases. Lustrous red and black baked enamel finish. Long lasting oil resisting hose . . . Special alloy head casting. Stands high pressure . . . Trunk clamps for ease in removing lid; no loose parts to lose. Entire pump and lid removed to provide maximum opening for cleaning or filling. Grease left clean . . . Easy up and down pumping—no gear or pinion to wear. Convenient to carry to and from jobs . . . Heavy steel foot pad reinforces base prevents tipping.

● Reaming Shells

Reaming shells for use with diamond core bits are now available for immediate shipment in three standard types and four sizes by the Mining Division of the Carboloy Company, Incorporated, Detroit. These reaming shells are provided with a series of "Sinta-Set" diamond impregnated carbide inserts designed to increase core bit life. The inserts—brazed into recesses around the periphery of the reaming shells — maintain gauge during the entire useful life of the bit. Therefore, when the original bit is replaced, no further reaming in the drilled hole is required. Each insert is impregnated throughout one-half of its thickness with a quantity of highly selected West African bort. Three or four inserts are mounted around each shell, according to the size of the reamer. As repeated use wears the inserts and thus reduces them in size, the reaming shell can easily be brought back to its proper diameter by heating

Shells for use with diamond core bits.

the inserts with a torch until the braze metal has melted; removing the inserts; placing a shim of the proper thickness in the recess; and then re-brazing the inserts on top of the shims. Thus greater life can be obtained from the reaming shell since it can be used until the shell itself is worn so thin that it must be discarded. No dressing of the diamonds is required since the wearing action of drilling keeps fresh cutting faces of the bort constantly exposed.

Capacity
26½ Cu. ft.
51⅜" Width
52⅜" Height
428 Lbs. Wt.

Outstanding Bucket Value!

A "COMPLETE" Round Tipover Dumping Bucket with semi-automatic latch.

Ideal for mining, excavating or bulk transfer operations.

This bucket will dump with a slight pull when loaded, right itself and automatically lock in position when empty.

Immediate Delivery—Reasonably Priced

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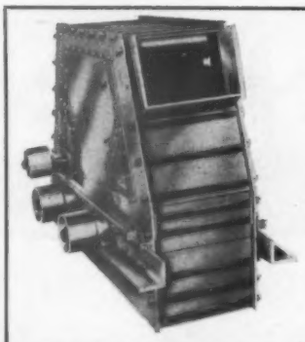


This new double-impeller crusher will produce from 100 to 150 tons per hour of material passing 80% through a 1-inch mesh.

It's compact in design, light in weight (12 tons), and saving in power (from 50 to 75 horsepower drives it). And, above all, it's

Adaptable to portable or stationary work.

Write for complete information.

NEW HOLLAND MACHINE CO.
NEW HOLLAND, PENNSYLVANIA

PERFORATED METAL SCREENS
FOR SAND, GRAVEL STONE, ETC.

Manufactured exactly to your specifications.

Any size or style screen, in thickness of steel wanted with any size perforation desired.
We can promptly duplicate your present screens at lowest prices.
Prompt Shipment

CHICAGO PERFORATING CO.
2435 W. 24TH PLACE CHICAGO, ILL.
Telephone CANAL 1459

SIMPLE

WILLSON No. 5 and 45 Lightweight Respirators with easily replaceable filters protect workers. They remove harmful dusts and mists. Bureau of Mines Approvals for various hazards. Filters tested for low breathing resistance.

SAFE

Two sizes for wide range of faces assure safety of a good fit. Form molded rubber facepiece prevents leakage at edges. Adjustable headband and nose spring maintain tight seal.

COMFORTABLE

Comfort features of WILLSON Respirators make them easy to wear. Their light weight requires little headband pressure. Compactness permits full vision—safety goggles can be worn. Washable cotton FACELET* protects face.

*Trade Mark Reg. U. S. Pat. Off.

Get in touch with your WILLSON *Safety Service Distributor for full information. Or write Dept. PQ-6.*

GOGGLES • RESPIRATORS • GAS MASKS • HELMETS

DOUBLE WILLSON

PRODUCTS INCORPORATED

READING, PA., U.S.A. *Established 1870*

● Dirt Mover

Speed has been built into every operating function of the Koehring Dumptor, made by the Koehring Company, Milwaukee, Wisconsin. You have three travel speeds, either forward or reverse, to save time in shuttle operation. Instantaneous gravity dump saves time on the fill. Wide body opening for quick and easy loading saves time at the loading unit. Dumping over the end or either side of the fill is possible without backing and maneuvering for position. Large pneumatic tires provide the flotation necessary for high speed over rough or soft haul roads. Power units of ample horsepower per gross ton load provide the power to haul big, heavy loads at high speed.

The all-welded, braced and reinforced body handles rock as well as loose dirt. Body is built to withstand the abrasive action of rock handling. A wide opening permits quick spotting and loading with a minimum of spilling. The wide lip has no obstruction to stop the dumped material flow. Suspended by chains, the free swinging, wear-resisting, automatic kick-out pan breaks the suction of sticky material. The dumping action is clear, complete and speedy, with any type of material . . . rock, gravel, loose dirt, mud or sand.

Dumptor has 3 travel speeds, either forward or reverse.

SAUERMAN

Long Range Machines

SAVE LABOR! SAVE POWER! SLASH COSTS!

Sauerman Cableway at Work in Deep Wet Pit

Sauerman Scraper Moves Gravel from Hill to Crusher

MAJOR savings result when Sauerman Scrapers and Slackline Cableways are used in sand and gravel excavation, stockpiling and other material-handling jobs where the long working range of these machines can be employed to advantage.

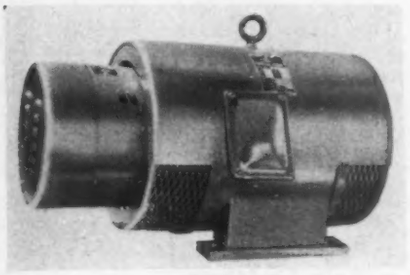
With one man at the controls, and with a relatively small expenditure of power, a Sauerman machine will dig, haul and automatically dump a large hourly tonnage of any class of earth or bulk material. Moreover, the first cost of the equipment is moderate and upkeep is simple.

Tell us about your material-handling problems. If we think Sauerman equipment will meet your needs, we will offer suggestions and send you our catalog.

SAUERMAN BROS., Inc., 534 S. Clinton St., CHICAGO 7

● A-C Generator

A new line of small a-c generators, of the revolving field type, has been announced by the Electric Machinery Mfg. Company, Minneapolis, Minnesota. Built in ratings 6.25 k.v.a., 1800 r.p.m. and 1200 r.p.m. to 18.7 k.v.a., 1800 r.p.m.; single and 3 phase; standard and close regulation; 120, 120/208, 240 and 600 volts; these generators can be supplied as 2-bearing units for belted or coupled duty, or single-bearing for close coupling



A-C generator.

to driving engine. Drip-proof generator and exciter construction is standard. Some of the construction and operating features of the new generator line are: Rugged construction, built to withstand heavy-duty service on stationary or portable power units; enclosed ball bearings; cartridge type bearings with sealed lubrication for trouble-free operation; high-torque dampers keep parallel-operated generators running smoothly; revolving field construction, superior for a.-c. generators; same as used on big generators; easy access to exciter brushes for inspection; slip-on louvered cover.

● Trough Conveyor

The Godfrey Conveyor Company, Elkhart, Indiana, offer a trough belt type conveyor that is especially adapted for handling sand, g r a v e l, crushed stone, cinders, slag, coke and other abrasive ma-

Conveyor with concave belt.

terials. The belt is concave, thus keeping material in the center of the trough and away from the sides. This machine is particularly recommended for building supply dealers, road builders, contractors and those engaged in a similar line of business. The frame is built of solid steel reinforced at all critical points to eliminate "weave" or "twist." Drag chains are extra heavy, with a test strength of 14,500 pounds per strand. May be had with either a self-locking, manually operated, raising and lowering device or a power unit at a small additional charge.

● Face Shield Visors

The Chicago Eye Shield Co. offers a new snap-fast shield to save lost time, make possible visor replacement in 15 seconds. Perforations in the visor fit snugly over small lugs. Spring clamps at each end hold the visor firmly in place. For release, a turn of the fingers snaps out the old visor, and a new one is quickly slipped into position. This feature is especially desirable when face shields are used in flash welding, butt

Protective Shield

welding, spot welding, heavy grinding, and other operations. The ease of visor replacement by no means is the only special feature of CESCO's new face shields. The t o u g h, noninflammable plastacele visor protects the head and neck. It fits snugly against the chest to prevent the entrance of flying particles from below.

The Spotlight

IS ON

THE

GILSON MECHANICAL TESTING SCREEN

The compact, ingeniously designed GILSON TESTING SCREEN assures a controlled product guaranteed to meet specifications. Test samples of crushed stone, gravel, slag, etc. are carefully sized through five test screens by a smooth and quiet vibration, separating 100 pounds of sample in 5 minutes or less. Eliminate errors that happen through "sizing by guess"—write today for complete information on the GILSON TESTING SCREEN.

THE GILSON SCREEN CO.

P. O. BOX 186 MERCER, PA.

PYRASTEEL KILN ENDS

are a *POSITIVE* means of preventing

BURNOUTS

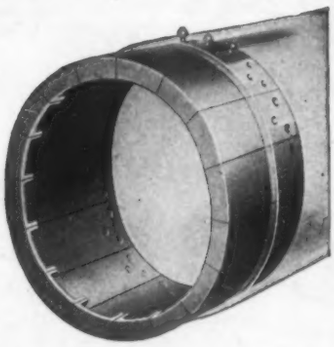
LOSS OF KILN LINING

LOST OPERATING TIME

A recent survey of the industry reveals that PYRASTEEL kiln ends last for years —five to seven in most cases.

Don't wait until you are too busy to do it. Put them on *NOW* and avoid trouble later.

Write for Bulletin of This Heat-Resisting Alloy



Showing discharge end of cement kiln fitted with PYRASTEEL Segmental Kiln Ends.

Unit Segments are easy to install or replace.

CHICAGO STEEL FOUNDRY COMPANY

PYRASTEEL for high temperatures

KEDZIE AVE & 37TH ST CHICAGO 32, ILL. Makers of Alloy Steel for 30 Years

EVANSTEEL for strength

NICHOLSON BINS BUILT FOR
BULK STORAGE
BATCHING PLANTS
SCREENING PLANTS

Post war construction will place greater demands upon your present facilities. PLAN NOW for increased business.

"Storage for Industry"

ENGINEERS CONTRACTORS

THE NICHOLSON CO.

Ten Rockefeller Plaza, New York 20, N. Y.

10 Rockefeller Plaza
New York 20, N. Y.

● Nozzle Tester

A product of the Buda Company, Harvey, Illinois, the Hydraulic Diesel Nozzle Tester is a precision instrument made for accuracy in testing, yet rugged and simple in construction. No technical knowledge is required for its proper use—any mechanic, using the Buda Nozzle Tester, can easily measure injector opening pressures, determine accurate adjustment, check spray pattern for uniformity, and detect other irregularities, such as sticking needle valve, dribble and leakage around valve seats . . . troubles which would normally not be discovered without detailed checking. It is equipped with a high-quality standard hydraulic pressure gauge, 3 1/8 inch dial, 3,000 p.s.i. capacity, 100 lb. graduations. Gauges of 5,000 and 10,000 p.s.i. capacity are also available on request at a slight additional cost. A portable unit, it weighs less than 19½ lbs. complete, including the all steel carrying case, adapter and removable steel handle which is 12 inches long. The unit stands 10½ inches high overall and has a base or mounting flange 6x3½ inches. Carrying case size 6⅝"x7⅛"x-11½". The shut-off valve prolongs the life and accuracy of the pressure gauge. When closed the valve disengages the pressure gauge when tester is used for nozzle flushing, or for leakage tests when readings are not required. The Buda Nozzle Tester is guaranteed against defects in material and workmanship, and to give satisfactory service if used according to directions. Every Nozzle Tester is thoroughly tested under actual conditions before shipment.

Hydraulic Diesel nozzle tester.

● Belt Fastener

A new fastener designated "Flex V," for A and B section V-belts has been developed by the Flexible Steel Lacing Company, Chicago, Illinois. The fastener consists of two V-shaped end plates, and alloy metal hinge pin and self tapping screws for securely fastening the end plates to the belt ends. A simple applicator is used to prepare the belt ends, place and align the end plates and hold the screws upright during the actual fastening process. The separable hinge joint permits quick, easy replacement of V-belts without dismantling line shafting or machinery. With no metal on the underside of the belt Flex V fastened belts can also be run on a V-flat drive. The manufacturer states that the separable hinged

End plates form hinge for fastening belt ends.

Alligator V-belt fastener has widely extended the use of V-belting on drives where endless V-belts are not easily replaced. As a result of this development several belting manufacturers are now making open-end V-belting in rolls to be cut to any desired length. The Flex V fastener will still further extend the use of the smaller sizes of V-belting.

● Convertible Shovel

Koehring Company, Milwaukee, Wisconsin, has announced a half-yard shovel, convertible to crane, dragline or pull shovel. It is also available as a cruiser crane mounted on rubber tires, and can be furnished for truck mounting. Many new features have been incorporated for greater speed, increased production capacity, easy operation, low maintenance costs. Outstanding design improvements are: same boom for shovel or pull shovel operation; trigger-fast dipper trip; independent unit traction gear case; easily removable machinery units; instant travel reverse; spacious walk-around area; head room in all parts of cab.

EARTH is moving faster these days

in Trucks equipped with

Brooks LOAD LUGGER Trade Mark Reg

. . . and 5 to 10 Detachable Dump Buckets

There's a new efficiency and a faster tempo today on material handling jobs wherever Brooks Load Lugger is used. You can mount it on any standard chassis and make one truck do the work of many. Continuous hauling is what counts . . . picking up and dumping the buckets as fast as filled . . . no waiting for loadups, no needless delays, no wasted manpower. This method shows big savings in quarry work, road building, excavating, loading riprap, stripping overburden. Use this economy system on your earth moving contracts!

Write for CATALOG

Brooks EQUIPMENT AND MFG. CO

Distributors in all Principal Cities

103 Davenport Road, Knoxville 8, Tenn.

TRADE NOTES

F. W. Sparks

F. W. Sparks was recently appointed manager of the Cleveland region for the Cummins Engine Company, Incorporated, Columbus, Indiana, manufacturers of diesel engines. This region includes Ohio and Michigan. Mr. Sparks has been a member of the Cummins sales department for several years, most recently having been located at the home office; his new headquarters will be at 805 Fidelity Building, Cleveland. When in Cleveland, manufacturers and their representatives are invited by Mr. Sparks to make their headquarters at his office, where every possible assistance in making train and hotel reservations, or in arranging other accommodations, will be provided.

U. E. Sandelin has been appointed manager of the Allis-Chalmers Manufacturing Company's Seattle district office, it was announced recently by Frank Angle, manager of the company's 60 district and branch offices.

Mr. Sandelin succeeds A. J. Schmitz, who has been named Pacific regional manager. Before being appointed to the Seattle office Mr. Sandelin was attached to the Allis-Chalmers district office in Washington, D. C., for three and one-half years. He also will supervise the Spokane, Washington, branch office.

Ralph J. Cordiner has been elected vice president and assistant to the president of the General Electric Company, Schenectady, New York, with general administrative duties as designated by the president, Charles E. Wilson. Mr. Cordiner has been assistant to the president for the past 18 months, since his resignation as vice chairman of the War Production Board.

Mr. Cordiner has been continuously connected with the electrical industry since his undergraduate days at Whitman College in Walla Walla, Washington, when he was employed part-time as an electrical appliance salesman by the Pacific Power and Light Co. After his graduation in 1922 he was commercial manager of a division of that company, but within a year became connected with the Edison General Electric Appliance Company, serving successively as Northwest manager in Portland and Pacific Coast division manager in San Francisco.

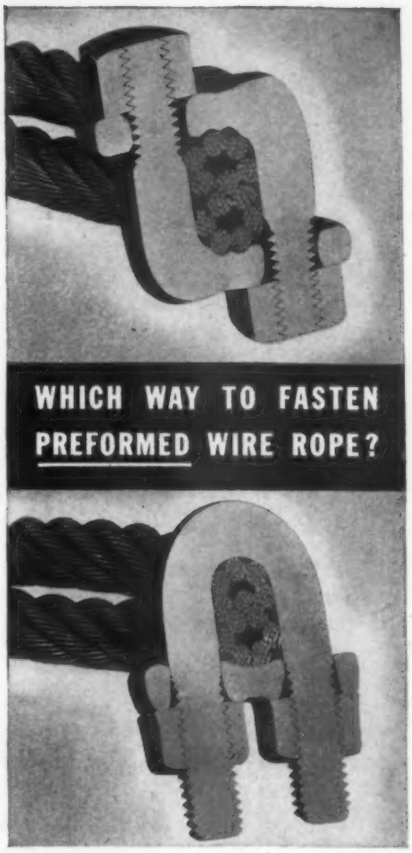
R. G. Pauley has been appointed district manager in Pittsburgh of the mechanical goods division of The Goodyear Tire & Rubber Company, it was recently announced.

Mr. Pauley is a graduate of Purdue University and winner several years ago of Goodyear's annual top sales award. He was transferred to Pittsburgh from the Cleveland office, and replaces C. A. Mathias, who was transferred to Buffalo.

Wm. K. Holt

William K. Holt of San Antonio, Texas, has been elected a director of the Tyson Bearing Corporation, according to announcement by E. R. Galvin, president. Mr. Holt is president of the William K. Holt Machinery Company of San Antonio, one of the largest distributors of heavy construction machinery in the southwest. Following many years with the Holt Manufacturing Company, forerunner of the Caterpillar Tractor Company, he founded the Mexico Tractor & Machinery Company of Mexico City. He was president of that organization until he resigned to form the San Antonio concern in June, 1933. Mr. Holt has been a prominent member of the Associated Equipment Distributors for several years. He is also a member of the British Club of Mexico, D. F., Mexico City Country Club, San Antonio Country Club and the Bohemian Club of San Francisco.

O. G. Mandt, for the past 17 years vice president and general manager of The Jaeger Machine Company, Columbus, Ohio, was made president of that organization February 3. Gebhard Jaeger, former president, was elected chairman of the board and R. McLean named first



The cross-section views show what happens to wire rope. In Fig. 1, Laughlin's "Fist-Grip" Safety Clip holds the 5/8" rope with hardly any distortion (note hemp centers). In Fig. 2, hemp center under U shows how rope is squeezed and flattened by U-bolt's smaller bearing area and "Finger-Pinch". Both were tightened to same tension by torque-indicating wrench.

Here's Why "Fist-Grip" Clips Work Better

Laughlin Safety Clips have identical saddles, flat sides; hold rope firmly without crushing. Saddles fit snugly against "live" and "dead" ends. Fewer clips deliver full rope power. The only clips with drop-forged bolts. Test them, for your rope's sake.

Distributed through mill, mine and oil field supply houses. Write for catalog. Dept. 3, The Thomas Laughlin Co., Portland 6, Maine.

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

POST WAR CONSTRUCTION CAN BE DESIGNED NOW

Types of Projects Solicited

SILOS — "Sliding Form" Method
STORAGE — for all Granular materials
BUILDINGS OF ALL TYPES—
Industrial or Commercial
RETAINING WALLS
RESERVOIRS
PUMPING STATIONS
CEMENT PLANTS
YOU CAN PROFIT BY OUR TWENTY-FIVE YEARS EXPERIENCE

Our engineers and construction crews are available for quick construction.

E. C. MACHIN COMPANY
BUILDERS
Commonwealth Building — Allentown, Pa.

IT COSTS NO MORE TO USE THE BEST

REPLACE WITH
"Indian Brand"

Shovel Dippers
Dipper Teeth
Shovel Treads

Crusher Jaw Plates
Mantles—Concaves
Bowl Liners
Roll Shells

Pulverizer Hammers
Grate Bars—Breaker Plates

Ball Mill Liners
Screen Plates

The Frog, Switch & Mfg. Co. CARLISLE, PA.
ESTABLISHED 1881

vice president, in charge of sales. Entering the construction industry in 1906 as a manufacturer of tilting concrete mixers, The Jaeger Machine Company has expanded to become the largest manufacturer of contractors pumps, various types of mixers, truck mixers and road spreading and finishing machines. During the war it has engaged in the large scale production of invasion ship winches, air compressors, and material loaders and cranes for war needs. These latter lines, which were introduced to over 700 of Jaeger's distributors, highway officials and contractors at an exhibit held in the company's plant in January, will be continued for civilian use after the war.

J. H. Middlekamp

John H. Middlekamp, recently resigned director of the automotive division of the War Production Board, as manager of the government department of Mack Trucks, Incorporated, has been announced by C. T. Ruhf, president.

Mr. Middlekamp was director of the automotive division of WPB from Jan. 1, 1944, until his resignation Jan. 6 of this year. Prior to that he had spent a year and a half as a lieutenant colonel with the Army handling its truck production problems, resigning to join WPB. Mr. Middlekamp will continue as a consultant to WPB and will retain his chairmanship of the Truck Committee of the Combined Production Resources Board. He will make his headquarters in Mack's executive offices in New York's Empire State Building.

Organization of a new engineering department of Johns-Manville was revealed recently with the announcement of the election of Kenneth W. Huffine as vice-president of the Johns-Manville Products Corporation.

Formerly manager of the Johns-Manville plant at Waukegan, Illinois, Mr. Huffiine in his new capacity will be in charge of the new department created to consolidate engineering activities in the mining and manufacturing division to meet the production demands of wartime operations, and to expand plant engineering programs in preparation for postwar production plans of the company. Headquarters will be in New York.

As the result of vastly increased industrial activity in North and South Carolina and in Virginia, The Goodyear Tire & Rubber Company has announced the opening of a new completely staffed and equipped district office in Charlotte, North Carolina, for its mechanical goods division.

The new district office will be headed by R. G. (Dick) Abbott, transferred from Richmond, whose staff will include G. T. Mahoney and W. C. Killick.

Victor Failmezger, formerly application and field engineer for the H. K. Porter Company, Inc., Pittsburgh, has been named sales manager of its subsidiary, Quimby Pump Company, Newark and New Brunswick, New Jersey. During the past year he had represented the company in western Pennsylvania, West Virginia and eastern Ohio.

George Green has been appointed vice president in charge of sales of the Mt. Vernon Car Manufacturing Company, Mt. Vernon, Illinois, a division of H. K. Porter Company, Inc., Pittsburgh. He was formerly associated with the Union Asbestos & Rubber Company, Chicago.

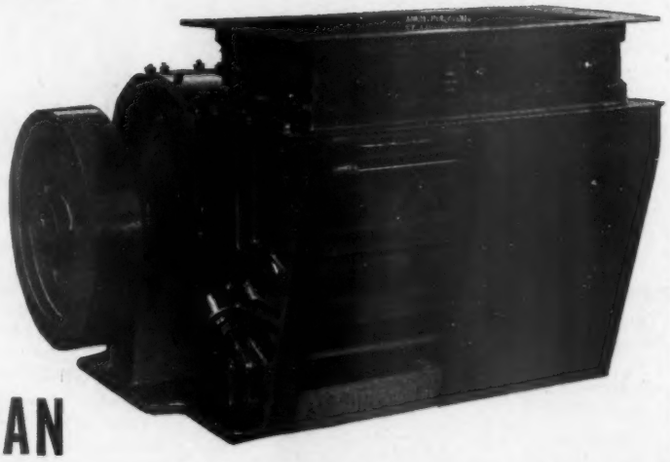
The G. W. Van Keppel Company, Kansas City, Missouri, was recently appointed as authorized distributor in that territory for The Euclid Road Machinery Company of Cleveland. In addition to the Euclid line for mines, quarries and industrial concerns, the company also distributes a well-rounded line of construction machinery.

Roy Schoonfield has been appointed acting manager of the Washington branch of Gar Wood Industries, Incorporated, by W. H. Hammond, vice-president and director of branches. Schoonfield succeeds A. E. Heath, who has been assigned to other duties with the corporation.

The new government tire manufacturing plant to be built and operated in Tuscaloosa, Alabama, by The B. F. Goodrich Company, Akron, Ohio, will be one of the largest units in the new $70,000,000 government program announced in Washington January 19.

The main factory building will be 1200 feet long and 300 feet wide and will house modern processing and tire

HIGHER capacity and crushing power



AMERICAN CRUSHERS

Specify AMERICAN Hammermills for "ceiling" performance in general stone crushing ability.

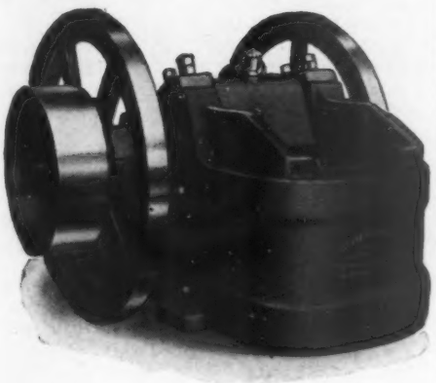
They consistently record new "highs" for capacity—up to 100 tons per hour—and hold the top marks for non-stop runs and operating efficiency.

Write for Bulletin

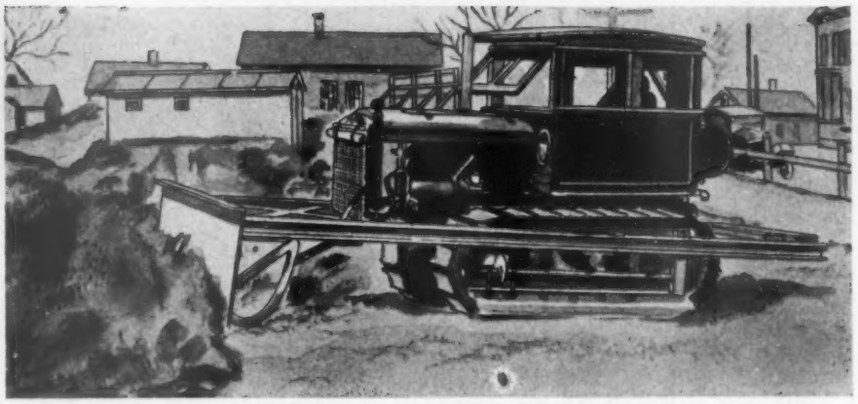
AMERICAN PULVERIZER CO. 1059 Macklind Ave. St. Louis 10, Mo.

FARREL BACON CRUSHERS

Complete plants designed and equipped, including Screens, Elevators and Conveyors. Machinery for Mines and Rock Quarries, Sand and Gravel Plants. Engineering Service.



EARLE C. BACON, Inc.
17 John St. New York, N. Y.



The accompanying illustration shows the first Bulldozer manufactured and sold on a commercial basis. It was developed and built in 1923 by LaPlant-Choate Manufacturing Company for use on the Dixie Highway in Kentucky. This dozer was a hand operated affair and was designed for mounting on Best and Holt tractors, predecessors of the "Caterpillar" tractor. The blade was a rigid sheet of metal intended to push material forward, and lacking any curvature for rolling it as is provided in most modern dozers.

building equipment. Building contracts will be awarded shortly and construction work started as rapidly as possible. All materials and equipment will carry high government priorities and completion of the new plant will depend on the availability of all necessary components.

Lt. Col. C. B. (Cliff) Gould, for many years manager of the Detroit office of Barber-Greene Company, Aurora, Illinois, manufacturer of asphalt paving machines and material handling equipment, has recently been released from the Army Air Corps. He has again assumed duties with Barber-Greene in his previous capacity, with headquarters in Detroit.

Lt. Col. Gould returns to Barber-Greene after several busy and very interesting years with the Army Air Corps. His first assignment was at Morrison Field, West Palm Beach, where he was Engineer Officer of the 15th Group. Since 1943, he has been with the Army Air Transport Command, Homestead, Florida, as Commanding Officer of the 54th Squadron.

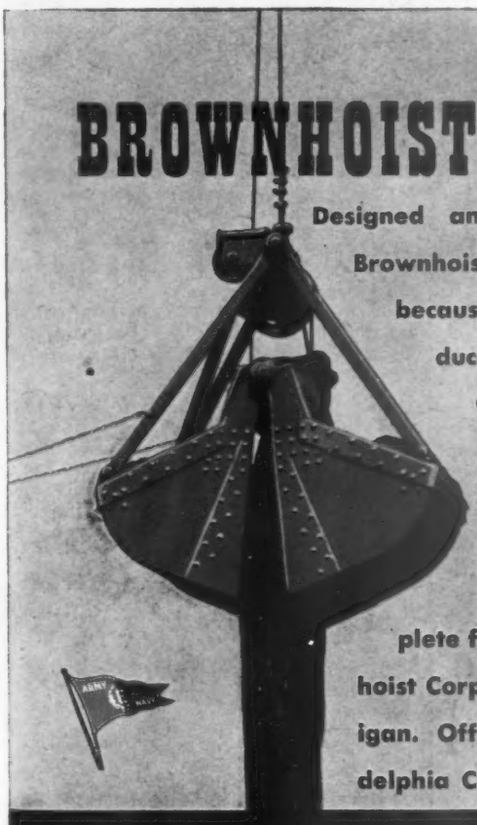
R. W. Davis has been appointed general manager of the Allis-Chalmers Manufacturing Company's Norwood, Ohio, works, it was announced recently by Walter Geist, president of the company.

The Norwood plant is engaged principally in the production of electrical equipment and centrifugal pumps in the smaller sizes of the company's line. Previous to his appointment, Mr. Davis was assistant manager of the company's electrical department at Milwaukee, Wisconsin, but for nearly two years he has been on leave to serve as director of the electrical equipment branch in the War Production Board.

Henry Barnhart, formerly manager of the shovel and crane division of Lima Locomotive Works, Incorporated, Lima, Ohio, has been made vice president in charge of shovel and crane division. Mr. Barnhart joined the sales force of the Lima organization in 1928 as assistant sales manager. In 1936 he was made general sales manager of the shovel and crane division and in 1943 he was made manager of the division. He received his Ph.B. and M.A. degrees from the University of Notre Dame, after which he did postgraduate work at Harvard University. The name Barnhart has long been associated with the shovel industry, dating back to 1883, when the "Barnhart" shovel was invented. Mr. Barnhart is a native of Marion, Ohio.

The Martin-Roasa Tractor & Equipment Company, Cedar Rapids, Iowa, has been appointed distributor for Pioneer Engineering Works of Minneapolis. They will represent the company in the distribution of crushers, feeders, screens, gravel and washing plants, belt conveyors and

BROWNHOIST BUCKETS

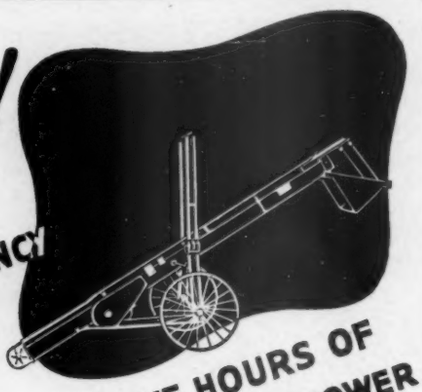


Designed and built by Industrial Brownhoist Corp. do a better job because, 1) Large Sheaves reduce rope wear, 2) Heavy Carbon - Steel digging lips take deep, clean bites, 3) Extra-sturdy construction insures long life. Write for complete facts to Industrial Brownhoist Corporation, Bay City, Michigan. Offices in New York, Philadelphia Cleveland and Chicago.

BROWNHOIST BUILDS BETTER BUCKETS

Amazing!

STRENGTH
DURABILITY
EFFICIENCY



GODFREY

SAVE HOURS OF MANPOWER

sand-gravel-crushed stone

CONVEYOR

Don't let the shortage of manpower worry you when you have a pile of material to move, let GODFREY supply you with a mechanical conveyor to do the work of *many* men. These speedy conveyors come fully equipped with chutes and screens, and caster wheels. (Available in 16-, 20-, 25-, 30-, 35-, and 40-foot lengths) with either electric motors or gas engines, with steel wheels, and with plain or shaker type chutes and screens. A sturdily constructed Godfrey conveyor will soon pay for itself by increased output and higher profits.

Write for catalog to Dept. PQ

GODFREY CONVEYOR CO. ELKHART 6 INDIANA

SCHAFFER

Poidometer . . . the automatic

for MIXING

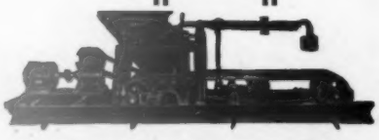
for BLENDING

FEEDER
WEIGHER
CONVEYOR

"It's a job for SCHAFFER"—if it demands fast and accurate proportioning of several materials. SCHAFFER Poidometers are *precision* machines which combine high speed weighing with a built-in ability to give sustained trouble-free service.

Remote control recording and operating devices, and total weight recorders, now available.

Write for Catalog No. 5



SCHAFFER POIDOMETER CO., 2828 Smallman St., Pittsburgh 22, Pa

bituminous mixing plants. The new distributor maintains a branch in Hannibal, Missouri, and will serve several counties in the northeast part of that state as well as eastern Iowa.

R. L. Hoenstein recently was appointed superintendent of the Mt. Wolf, Pennsylvania plant of the Wickwire Spencer Steel Company.

H. C. Allington has been appointed assistant general sales manager of the Wickwire Spencer Steel Company. Since joining the company in 1944, he has acted as sales research engineer, and in his new position will continue work on market development and expansion.

For the third time since the fall of 1943, the Raybestos division, Bridgeport, Connecticut, has won official recognition for its record in the production of war equipment by being awarded a second star to the company's Army-Navy "E" pennant.

Harold I. Kurtz, formerly of the Bureau of Repairs and Utilities Branch, War Department, has recently joined the staff of the Chain Belt Company of Milwaukee as a Sanitary Engineer.

Mr. Kurtz is particularly well suited for this work, having been a sanitary engineer for the city of Butler, Pa., as well as a chemical engineer in the Bureau of Sanitation at Bluefield, West Virginia. He is a member of the American Chemical Society.

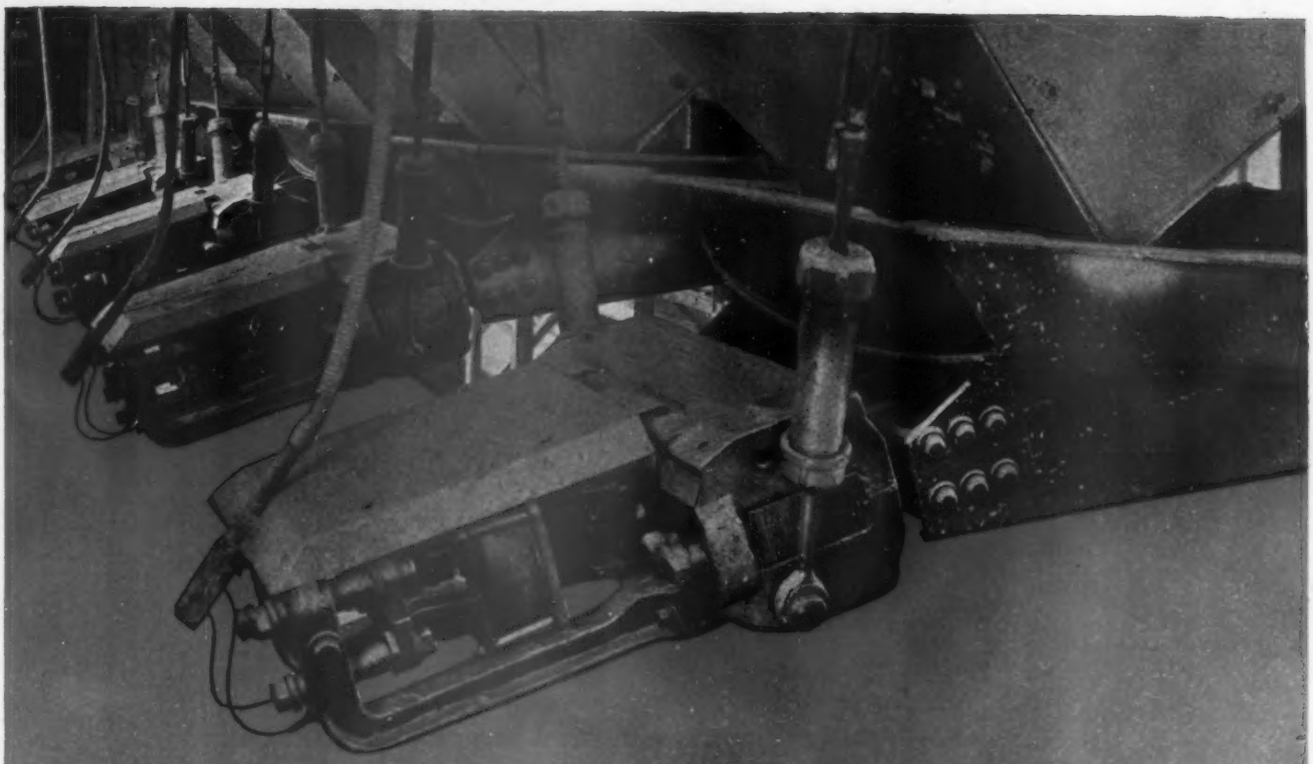
William C. Johnson has been named manager of the Allis-Chalmers general sales organization. He will direct the sales of 1,600 products and the operations of 60 district offices. Mr. Johnson has been with the firm since 1924, and has been sales manager of the crushing-and-cement division since 1940.

C. E. Hill, for many years associated with the Chicago office of Reeves Pulley Company, Columbus, Indiana, on January 1 became manager of that company's Chicago branch office.

In the interest of extending its service throughout the Chicago area, the Denver Equipment Company recently moved to larger quarters in the Bell Building, 307 North Michigan Avenue.

Lake Shore Engineering Company, Iron Mountain, Michigan, recently announced the opening of new sales offices in the Union Commerce Building, Cleveland 14, Ohio. The company manufactures industrial, marine, and mining machinery including skips, cages, hoists, sheaves, cars, castings, winches, stills, machine tools and special machinery. Facilities include engineering, machining, casting, plate work, riveting, welding, fabricating, assembling, etc. Mr. J. M. Record will be district manager for Lake Shore in the Cleveland territory.

The Wickwire Spencer Steel Company recently announced the election of Robert T. Dunlap as a member of the board of directors. He is also Vice President in charge of production of Wickwire Spencer. Mr. Dunlap will continue to make his headquarters in Buffalo at the Company's plant at River Road.



CONTROLLED FEED

This battery of Jeffrey-Traylor electric vibrating pan feeders provides a positive-controlled feed to a bank of vibrating screens.

This results in greater plant capacity and higher screen efficiency, for the rate can be instantly regulated to suit the varying feed to the screens.

The feed rate may be varied from minimum to maximum by a simple twist of the wrist.

THE JEFFREY MANUFACTURING COMPANY

917-99 North Fourth Street, Columbus 16, Ohio

ESTABLISHED 1877

Baltimore 1 · Buffalo 2 · Cleveland 13 · Huntington 19 · Milwaukee 11 · Pittsburgh 22 · Birmingham 3 · Chicago 1 · Denver 2 · Houston 5 · New York 7 · St. Louis 3 · Salt Lake City 1 · Boston 16 · Cincinnati 2 · Detroit 11 · Huntington 19 · Philadelphia 3 · Scranton 3

RUBBER is vital for Industry to keep the War machine moving

All of us should keep our eyes on the ultimate goal, to that time when the civilian trade can be supplied with all the Industrial Rubber Products they need.

Some reverses have been experienced in the War progress, which none of us like. But it is a case of everybody setting their jaws and performing their assigned tasks to make final victory that much sooner.

Quaker is producing at maximum capacity. Millions of feet of belting and hose together with tons of rod and sheet packings are going to help keep the war machine in operation—you would not want it otherwise, even though it deprives you of much longed for stock.

All orders for the Army, Navy, Air Forces, are being rushed to completion. We are serving industrial and civilian uses to our best ability under the present circumstances.

Though the exact product you want may not be available, Quaker can offer and suggest what can be used during the present emergency.

Quaker is at your service to help you whenever industrial rubber goods are involved. For sixty years Quaker has been manufacturing Quality Industrial Rubber Products . . . Belting—Hose—Packings—and Moulded Parts. Regardless of what your rubber problem may be, feel free to consult with us.

"If there is a way to get it done—Quaker will do it"

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Mfrs. Industrial Rubber Products

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SAN FRANCISCO 5 • LOS ANGELES 21

"Primacord helps us keep our pit safer"

"Safer safety" is an ultimate goal, to be achieved only by combining the right material, the right man, and the right method. Here is the Primacord deal:

Primacord offers *safer storage*, because sparks, friction or ordinary shock do not affect it.

Primacord offers *safer distribution*, because Primacord must be detonated. Common laborers can carry it without danger to the point of use.

Primacord offers *safer loading*, because no cap goes into the hole. Simply lace and lower the bottom cartridge, complete the load, stem and tamp.

Primacord offers *safer firing*, because you attach the detonating cap or caps to the main trunk line when all is in readiness to fire the blast.

Primacord offers *safer digging*, because every cartridge when properly placed is detonated by Primacord. No unexploded powder is left in the rock pile.

THE ENSIGN-BICKFORD COMPANY · Simsbury, Connecticut

P-3

Four aces that win the hand for Primacord Detonating Fuse with a high card to spare.

Also
ENSIGN-BICKFORD SAFETY FUSE
Since 1836

PRIMACORD-BICKFORD Detonating • Fuse •

ASPHALT - AGGREGATE ADHESION AS IMPROVED BY CHEMICAL ADMIXTURE

Case No. 1

*AGGREGATE CAN BE WET OR DRY

"We wish to inform you that last Winter we applied on penetration work approximately 50,000 gallons of 115 penetration asphalt treated with your **NOSTRIP** compound. Much of this material was applied below freezing temperature and all of it was applied under **wet and adverse weather conditions.** We obtained perfect adhesion, and there has been no evidence of the stripping of asphalt from the aggregate. Without the use of your **NOSTRIP** compound this work could not have been completed during the Winter months."

*Above is an excerpt of a letter from a Rhode Island contractor. Name on request.

your first drum

is our best salesman!

THE ALL-YEAR ROAD MATERIAL

NOSTRIP

AN ADMIXTURE FOR TAR AND ASPHALT

MAGUIRE INDUSTRIES, INCORPORATED • NOSTRIP DIVISION • 122 E. 42nd ST. NEW YORK, 17, N.Y.

CAN YOU SOLVE THIS ONE?

How many trips must you make to ferry a fox, a head of cabbage and a sheep across a stream, one at a time, so that the fox is never alone with the sheep, or the sheep alone with the cabbage?

Thermoid's extensive manufacturing facilities, spearheaded by Thermoid's Engineering and Research Staffs, have solved countless problems in the application of industrial rubber products.

A great many of these problems, in widely diversified fields, are being solved within the broad scope of the Standard Thermoid Line*. These solutions have been effected by Thermoid representatives in all parts of the country who have had long experience in specifying the most efficient Thermoid Products for all types of installations.

This combination has been consistently successful and can point with pride to an outstanding record of results—where results meant either an improvement in the finished product or an improvement in production technique. If you are confronted with a problem involving the use or application of industrial rubber products why not talk it over with the Thermoid representative?

Solution to puzzle: Seven. Ferry sheep across. Return and ferry cabbage across. Return with sheep. Leave sheep on original bank of stream and take fox across to other side. Return and take sheep across.

DON'T PUT IT OFF 'TIL TOMORROW *Buy More War Bonds Today!*

Thermoid Rubber

DIVISION OF THERMOID COMPANY
TRENTON, NEW JERSEY

"It's Good Business To Do Business With Thermoid"

*THE THERMOID LINE INCLUDES: TRANSMISSION BELTING • F. H. P. AND MULTIPLE V-BELTS AND DRIVES • CONVEYOR BELTING • ELEVATOR BELTING • WRAPPED AND MOLDED HOSE • SHEET PACKINGS • INDUSTRIAL BRAKE LININGS AND FRICTION PRODUCTS • MOLDED HARD RUBBER AND PLASTIC PRODUCTS.

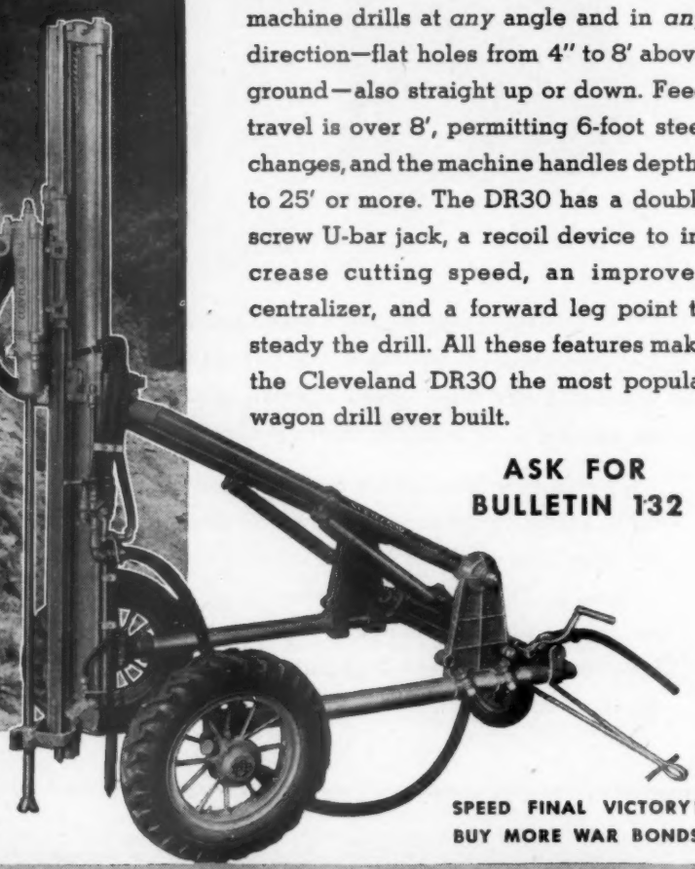
Tough Terrain!

But NOT too tough for CLEVELAND Wagon Drills!

● The mountain side is so steep on this road-building job that the wagon drills must be held with ropes. Yet even under such difficult conditions the Cleveland DR30 proves its mettle.

As this picture indicates, the DR30 is unsurpassed in maneuverability. The machine drills at *any* angle and in *any* direction—flat holes from 4" to 8' above ground—also straight up or down. Feed travel is over 8', permitting 6-foot steel changes, and the machine handles depths to 25' or more. The DR30 has a double screw U-bar jack, a recoil device to increase cutting speed, an improved centralizer, and a forward leg point to steady the drill. All these features make the Cleveland DR30 the most popular wagon drill ever built.

ASK FOR BULLETIN 132



Pneumatic tires now obtainable if specified by purchaser in his application for priority to Construction Machinery Branch of War Production Board.

SPEED FINAL VICTORY!
BUY MORE WAR BONDS

LEADERS IN DRILLING EQUIPMENT

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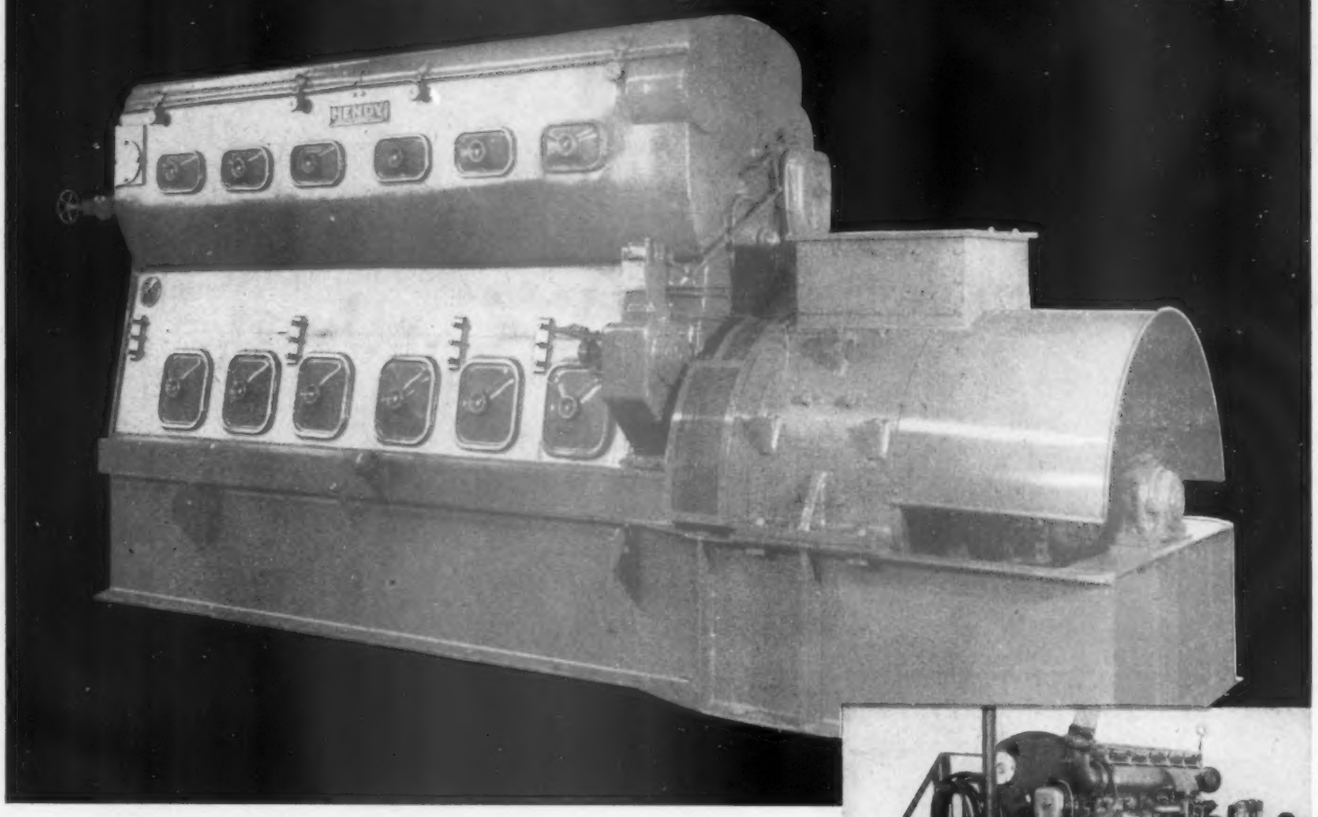
THE CLEVELAND ROCK DRILL CO.
DIVISION OF THE CLEVELAND PNEUMATIC TOOL COMPANY
CABLE ADDRESS: "ROCKDRILL" • CLEVELAND 5, OHIO

No Guesswork on Hendy Diesel Fuel Economy

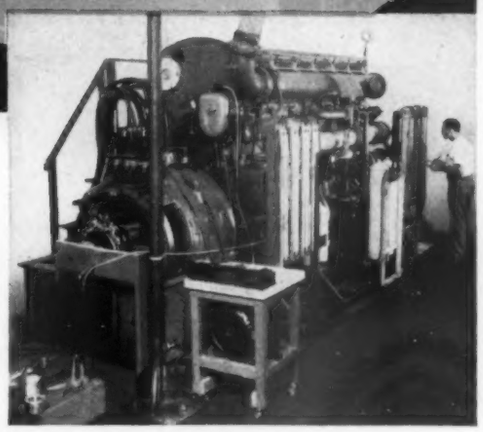


If fuel economy is a primary consideration for your new stationary power plants, investigate the *plus* performance of Hendy Series 50 Diesel-generating sets. Their quality is being demonstrated daily in the new AV1 cargo ships, where Hendy 250-kw sets (illustrated above) are giving maximum service.

Here are four basic reasons why Hendy Diesel-generating sets deliver the maximum kilowatt hours per gallon of fuel consumed:

1. **Unit-type fuel injectors assure accurately metered and timed fuel charges to each cylinder.**
2. **Oil-cooled pistons prolong piston-ring life.**
3. **Dual valves improve volumetric efficiency.**
4. **Crocker-Wheeler generators operate at high electrical and mechanical efficiencies.**

Hendy Diesel-generating sets are available in both a-c and d-c models, from 100 to 450 kw. Write for complete information, advising us of your electrical load conditions.



Laboratory set-up for checking efficiency of a Series 50 Diesel-generating set.

Proved beyond doubt or conjecture, each Hendy Series 50 Diesel-generating set exceeds a promise made by its designers—a promise to meet the operator's need for rigid fuel conservation.

More accurately than possible under field conditions, conclusive testing in the laboratory and on the test stand proved that the Hendy Series 50 Diesel-generating set operates at *high* efficiency—with *low* fuel consumption over the entire load range.

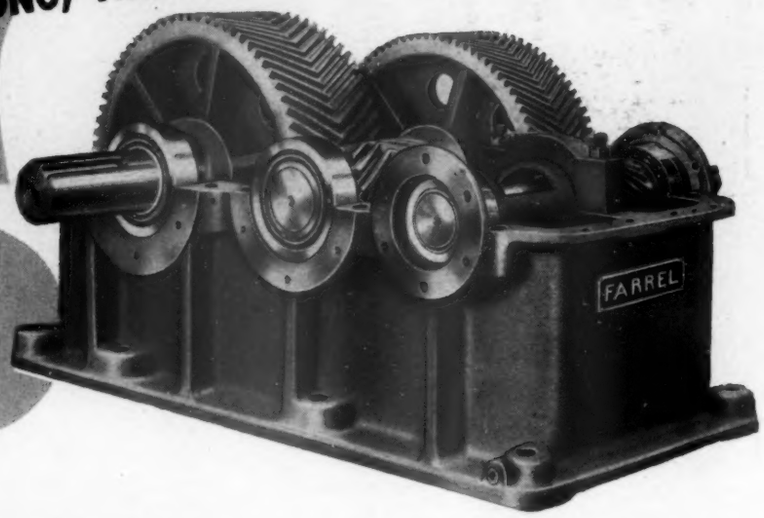
JOSHUA **HENDY** IRON WORKS
ESTABLISHED 1856
SUNNYVALE, CALIFORNIA

Branch Offices: WASHINGTON · BUFFALO · CHICAGO · CINCINNATI · CLEVELAND · NEW YORK · LOS ANGELES · DETROIT · PHILADELPHIA · PITTSBURGH · SAN FRANCISCO · BOSTON

88-D-15

Do you need gear units that:

1. PROVIDE EXTRA STRENGTH AND HIGH LOAD-CARRYING CAPACITY IN MINIMUM SPACE?
2. ARE SMOOTH AND QUIET IN OPERATION?
3. GIVE LONG, TROUBLE-FREE SERVICE?



Then specify Farrel Gear Units—the speed reducers that use the *Gear with a Backbone.*

Because these gears have no center groove between the two helices, the entire face width is put to work. This means more strength, more load capacity in a given space. Smooth, quiet operation results from overlap or interlacing of the teeth, gradual engagement and inclined line of pressure. Oblique lines of contact and evenly distributed pressure eliminate any tendency of teeth to wear unevenly during the long life of the gears.

High precision gear generation, rigid and accurately machined shafts properly mounted in roller bearings, and heavy section cases that hold rotating elements in precise alignment are assurances of long, trouble-free life.

Farrel Gear Units are available in a complete range of sizes, for any capacity, with ratios up to 300:1. Write for descriptive catalog No. 438.

FARREL
The Gear with a Backbone

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONN., BUFFALO, N. Y.

PLANTS: ANSONIA AND DERBY, CONN., BUFFALO, N. Y.

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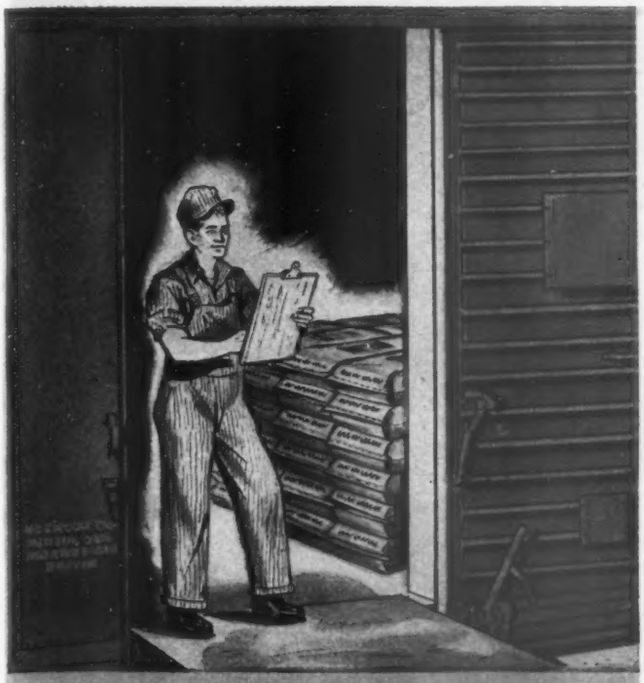
Farrel-Birmingham



1. This one man can load and stack 400 lbs. in Multiwall Bags as fast as . . .

2. . . . two men can handle a single 400 lb. drum.*

* Report from large chemical manufacturer. Name on request.

HOW TO SAVE MANPOWER . . .

without losing time

AGAIN and again, Multiwall bags have proved their worth as time savers, space savers, and man-power savers.

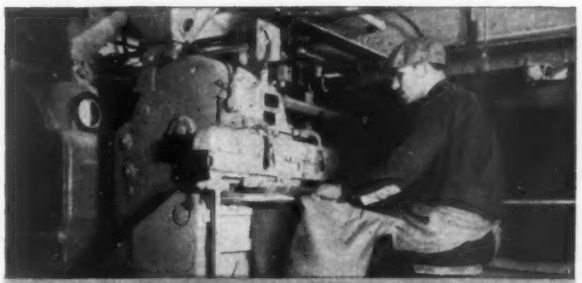
These convenient paper bags can be quickly and easily handled by a minimum number of loaders . . . a real saving of labor costs. And, because they can be stacked neatly and compactly, they save valuable space in storage and in transit.

BIG PLUS ADVANTAGES

Multiwalls are rugged . . . tough. Made of from 2 to 6 plies of sturdy kraft paper, they withstand plenty of rough handling.

These bags are sift-proof and moisture resistant — a most important advantage in shipping hygroscopic chemicals and foodstuffs.

Multiwall Paper Bags will be especially designed to meet your immediate packaging needs. To find out more about the time and money-saving advantages which they hold in store for you, just drop a line to your nearest St. Regis office today.



St. Regis Bag-packing Machines accurately pre-weigh a product and quickly pack it into Multiwall bags. They provide a still further example of a worthwhile manpower economy.

St. Regis MULTIWALL PAPER BAGS

MULTIPLY PROTECTION • MULTIPLY SALEABILITY

ST. REGIS PAPER COMPANY

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New Orleans, La. Franklin, Va. Seattle, Wash. Nazareth, Pa. Toledo, Ohio

BEACH-HEAD BULL SESSION

"Tex" was formerly a driller in the oil fields; Oscar, a rigger in a logging camp; Joe, a dragline operator; and Bill, a shovel runner for a construction outfit. Now they, and thousands like them, are building bases 'round the world.

In a bull session they'll gripe about lots of things—but mention *pre*formed wire rope and they change their tune. Back home, in scores of industries, they learned an affectionate respect for its dependability. And on foreign soil, with supplies hard to get and time at a premium, stout wire rope is doubly vital.

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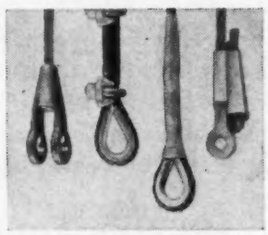

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MARCH, 1945

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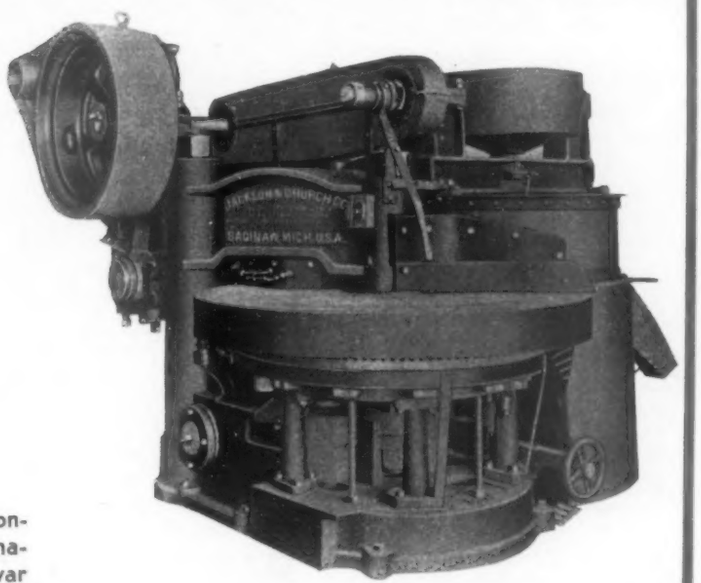

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The CONCRETE MANUFACTURER

MARCH, 1945

A SPECIAL SECTION OF PIT AND QUARRY DEVOTED TO PRODUCTION OF CONCRETE PRODUCTS AND READY - MIXED CONCRETE

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Warns Block Users Who Exceed $200 Building Limit

Threatening fines and possible jail sentences for violations, Stanley Mark, priorities chief of the War Production Board at Ventura, California, has "cracked down" on builders of residential structures who employ concrete blocks in their construction without first obtaining authorization for such construction from the Federal Housing Administration.

Because concrete units are easy to buy in quantities without priority, many builders in that crowded area have assumed that they may be used without limit. There has been no relaxation in the war-time rules on new residential construction, regardless of the material used, Mr. Mark pointed out, the $200 limit on materials and labor, inclusive, still being in force regardless of the type of material used.

Graystone Has New Fire Resistive Brick

The Graystone Concrete Products Company of Seattle is said to have introduced a new line of 4-hour fire-resistive blocks to meet Seattle's building-code requirements for Class A construction.

The units, being made in 8- and 12-inch sizes particularly for load-bearing walls, are said to be so dense and smoothly finished that the use of interior plaster is seldom felt to be necessary.

O.P.A. Increases Price of Ready-Mix in Midwest

The Office of Price Administration recently announced that manufacturers of ready-mixed concrete in several middle-western states have been authorized to increase prices equal in amount to increases recently granted cement producers. Effective February 3, the action applies to Wisconsin, Illinois, Indiana, North and South Dakota, Minnesota, Iowa, western Kentucky, and eastern Missouri. Western Kentucky was defined as the portion west of and including Owen, Scott, Fayette, Madison, Rockcastle, Lurel and Whitley counties.

Permalite Co. to Build New Plant at Modesto

According to Ian Mensinger, head of the Permalite Company, Modesto, California, manufacturer of lightweight concrete units, a new plant will be built this spring. The company has been producing the units with a lightweight pumice aggregate obtained from the Pacific Pumice Materials Company of Fresno.

The old production machines have been scrapped and two new Flam vibration units will be installed in the new plant. The most popular size unit in the Modesto area is 4 by 8 by 16 inches, according to Mr. Mensinger.

Floyd Griffith recently established a concrete building block factory in Poplar Bluff, Missouri, costing approximately $2,000. New machinery has been installed; and a rapid increase in production is scheduled.

• New Idaho Firm to Build

The recently-organized Idaho Concrete Pipe Company is erecting a new plant at Nampa, Idaho, and production is expected to get under way late this spring. The plant building 80 by 80 feet in size, will be of all-concrete construction and together with the equipment will represent an expenditure of about $36,500.

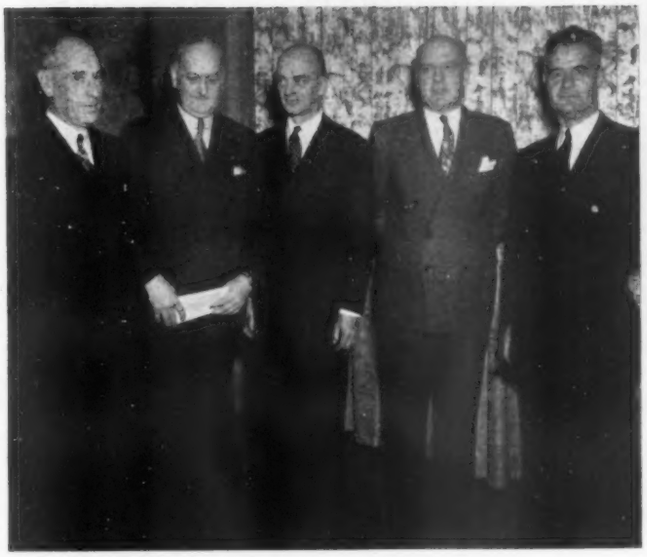
Jason Smith is the general manager.

Edward C. Leonard, 46, Jacksonville, Illinois, of the firm Leonard & Six, dealers in concrete and other builders' supplies, died recently. Mr. Leonard was a graduate of Routt college.

Simon L. von Almen, 70, who with his father inaugurated the building block industry in Olney, Illinois, died there recently. He is survived by his wife, two sons, two daughters and one sister.

Ready-Mixed Concrete Producers Hold Board Meeting In New York

. . . Where problems of pricing, essentiality, man power, truck drivers, and post war construction were discussed



Left to right: Joseph F. Farrell and Frank H. Morse, Cranford Corp.; Frank L. Kelly, Colonial Sand & Stone Co., Inc.; Ennis O'Rourke and Al Rees, McCormick Transit Mix Concrete Corp.

another ON THE SPOT report

EVEN though the proposed fifteenth annual meeting of the National Ready Mixed Concrete Association, scheduled for January 24, 25 and 26, would have been completed before February 1, the effective date of the request for a curtailment of convention travel issued January 5 by James F. Byrnes, director of the Office of War Mobilization and Reconversion, the association's president and executive secretary, Stephen Stepanian and Vincent P. Ahearn, respectively, decided to cancel the formal meeting and to hold a two-day board-of-directors meeting instead on January 24 and 25. This

G. C. McCullough, formerly of the Birmingham Slag Co., and son, G. B. McCullough of the Naval civil engineer corps.

action harmonized with that taken by the president and executive secretary of the National Sand & Gravel Association, whose twenty-ninth annual meeting, scheduled for January 23, 24 and 25, was abandoned in favor of a two-day board meeting on January 22 and 23, as reported in these pages last month. Thus, the directors in attendance at the two board meetings, held at the Hotel New Yorker, New York, were able to meet together for a joint lunch on January 24.

The first day's sessions of the ready - mixed - concrete association's directors were opened by President Stephen Stepanian, who discussed briefly some of the many questions that had received the association's attention and study during the preceding year, such as price control, cement-price increases, priority ratings for maintenance, repair and operating supplies, and the like. He reminded those present of the fact that ready-mixed concrete had been removed from control by Maximum Price Regulation 188. He commented also on the publication by the association of the book, *Control of Quality of Ready Mixed Concrete,* which became available to members during the year. He said that arrangements for research work at the University of Maryland had been completed and that new personnel was at work in the laboratory there. A cause for satisfaction was found, he said, in the growth of the association's membership, which now includes 193 active members (manufacturers of ready-mixed concrete) and 30 associate members (equipment manufacturers, industry-magazine publishers, etc.).

Executive Secretary Ahearn reviewed the history of the association's work in obtaining exemption of the ready-mixed-concrete industry from the requirements of the law covering contract renegotiation and told how the association's first application for such exemption, made in 1943, had been denied, but how a new application, filed in 1944, had been approved, thus providing exemption on all contracts entered into prior to June 30, 1944. On January 19, 1945, the exemption was extended.

Mr. Ahearn gave estimated figures on the production of ready-mixed concrete in recent years, saying that the total output of member and nonmember companies in 1942 was estimated to have been 24,000,000 cubic yards, in 1943 15,000,000 cubic yards, and in 1944 11,000,000 cubic yards. A further decline is expected to occur in 1945, he said.

The rights of returning war veterans to reinstatement in their old positions was emphasized by the speaker, who said that this rule is open to no exception if the former employees are physically able to fill their old jobs. If the returning veteran is incapable of filling his former position, he is entitled to one of equivalent rank and pay and without loss of his seniority rights.

Mr. Ahearn hurriedly reviewed some of the conditons surroundng the manufacture of ready-mixed concrete which affect the industry in important ways. Tires, he said, are very scarce, because the demands of the military services for the first quarter of 1945 are in excess of the entire industry's production capacity.

Ready - mixed - concrete manufacturers are not required by law to file their prices with the Office of Price Administration but are required merely to have a history of their prices available for inspection by O. P. A. representatives during regular business hours. With respect to permanent or portable plants set up since March of 1942, it will be necessary to obtain O. P. A. approval for any proposed price structure.

Increases in cement prices approved by the O. P. A. may, except

in the so-called Ohio area, be passed on to the purchasers of ready-mixed concrete. In the northwestern area, Mr. Ahearn said, approval to increase cement prices was granted by the O. P. A. and each individual ready-mixed-concrete manufacturer was required to show cause why this increase could not be absorbed by him. The association protested the unfairness of this requirement and relief was granted, but not until some time after the higher cement prices had been approved.

A similar situation existed in southern California, where the local O. P. A. claimed to have made a study to determine the ability of ready-mixed-concrete manufacturers to absorb the 20-cent-a-barrel increase in cement prices, but the association was able to show the O. P. A. that the industry in that area could not possibly absorb it, and relief was finally granted. The same situation developed in the northwestern area.

In California, Mr. Ahearn said, the ready-mixed-concrete industry's truck drivers have been held to be covered by the Fair Labor Standards Act when discharging concrete into forms for the construction of interstate facilities such as roads.

On the question of the industry's liability to pay "prevailing" wages Mr. Ahearn pointed out that producers of ready-mixed concrete are not subject to the provisions of the Bacon-Davis act, which requires the payment of prevailing wages, unless the ready-mixed-concrete plant involved is located on the site of the plant being built and served with concrete, nor are the ready-mixed-concrete truck drivers who drive their vehicles into such areas for the discharge of their loads.

The industry has not been recognized or listed as essential by the War Manpower Commission because of the latter's contention that there has been a great decrease in construction activity. In fact, the W. M. C. will not entertain a proposal that the industry be classified as essential. However, in northern and southern California the W. M. C. has classified the industry as "locally needed."

In a discussion of the man-power situation in various localities it was brought out by H. F. Thomson (General Material Company, St. Louis) that contractors working on war jobs can get workers, but ready-mixed-concrete manufacturers delivering concrete to those contractors' jobs, can not, with the result that the contractors are tempted to do their own concrete mixing on the job. A. R. Shiely (J. L. Shiely Company, St. Paul) described the situation in his company's area as critical because of the opening of new ammunition plants. He found no evidence of prejudice against the ready-mixed-concrete business. Operations are being conducted under a 90-per cent. employment ceiling, since the locality is a No. 1 area.

From another No. 1 area F. P. Spratlen (Brannan Sand & Gravel Company, Denver) reported good co-operation from local draft boards. In Texas, as reported by T. E. Popplewell (Fort Worth Sand & Gravel Company, Inc., Fort Worth), both the W. M. C. and the draft boards have been co-operative and extra men have been obtainable from contractors. One producer in Boston reported that he has only about one-half the men he formerly employed but that that is twice as many as are needed because of the declining demand. In Philadelphia the labor situation is not yet critical but is expected to become so. In Washington, D. C., the ready-mixed-concrete industry has been declared to be "locally needed."

Al Shiely, J. L. Shiely Co., St. Paul, and Charles P. Maloney, Maloney Concrete Co., Washington.

At the close of the morning session on the first day directors of the National Sand & Gravel Association met with those of the National Ready Mixed Concrete Association in a joint lunch, as has been said, and listened to an address by Colonel Willard T. Chevalier, publisher of *Business Week*. In the opinion of the speaker what to do with the victory to be achieved by the United Nations is quite as important as the actual winning of it. Lengthening of the war must not tempt us to lay aside our ideas for planning, he said, even though, following victory, there will be a period of hesitation while reconversion—a problem in some industries but not in the ready-mixed-concrete field—proceeds. He insisted that we will be faced with new conditions and that we must remain sufficiently flexible mentally to adjust ourselves to them. Many companies, he said, are shifting their emphasis from the physical problem of reconverting their plants sense to the psychological problem of reconverting their sales attitudes and organizations. The long-deferred and long-unsatisfied demand for many commodities will produce a "boom," he thinks.

Many people believe, said the speaker, that war-time controls will be thrown off, but no one knows when, by whom, or with reference to what. He cautioned his listeners against hoping too sanguinely for a quick relinquishment of controls.

The duty of leadership rests upon business men, he continued, and they must be able to analyze conditions and problems, imagine and plan solutions, and dare to go ahead. The rest will follow.

The number of persons who will be unemployed after the end of the war is not of as great importance as the length of time during which they will not be earning. It is incumbent on business men, therefore, to study the ways in which avoidable lay-offs can be prevented so as to cause the least damage to the nation as a whole. The problem will be one of shifting 22,000,000 in industry.

The speaker thought it might be unreasonable to expect industry to provide full employment, since even under present war-time pressure industry provided jobs for only 22,500,000 of the 55,000,000 employed, or 20 per cent., in 1940. Twenty one per cent. of these 55,000,000 were employed in agricultureal and all the remainder—51 per cent.—were engaged in commerce and the professions. Full employment, he said, must in his opinion be sought in the service industries.

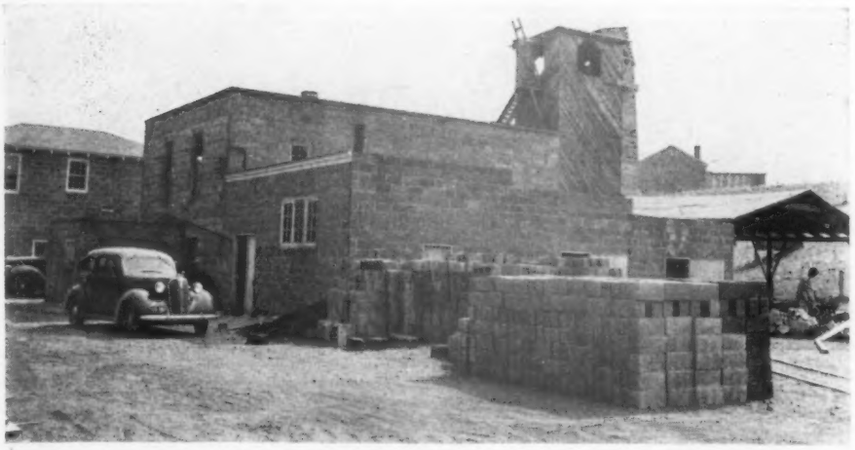
Thomas S. Holden, president of the F. W. Dodge Corporation, in speaking of *Construction After X-Day*, said that he saw little reason to worry about the status of post-war construction planning. The volume of planned post-war projects, public and private, he said, already exceeds any amount that is likely to get into actual work within a year after the end of the war. In the 37 states east of the Rocky Mountains there had been reported up to the end of No-

(*Continued on page* 144)

Virginia Cinder-Block Firm Makes Ten-Fold Production Increase to Meet Farm Demand

Step-Up Made in 2-Year Period, but Demand Still Far Exceeds Capacity

By WILLIAM M. AVERY



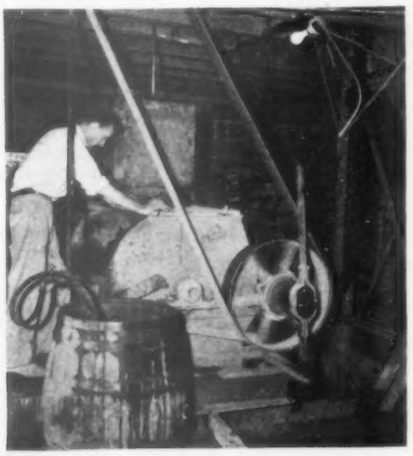
• This general view of the Marion plant was taken from the block-storage yard.

another ON THE SPOT report

ALTHOUGH there is no likelihood that the concrete-products industry will ever be regarded, even by its competitors, as a "war baby" in any sense of that overworked term, it is self-evidently true that the war has "done things" for the products field in general and for the block business in particular. Consider, for example, the Marion Cinder Block Manufacturing Company of Marion, Virginia. In 1942 this small firm produced 35,000 units. Under the impetus of soaring demand, production in 1943 was increased to 250,000 units, and for the past year it very probably exceeded 360,000 units. But despite this more-than-ten-fold increase in productive capacity, the company admits that it can supply only about 60 per cent. of the current demand.

The firm makes a cinder block weighing 30 pounds in the 8- by 8- by 16-inch unit, and showing an average compressive strength of 814 p.s.i. on 14-day tests. A healthy note in the unprecedented rise in volume of production is that the principal consumer to-day is the farm market, which the company supplies by deliveries in its own Ford trucks within a radius of 75 miles.

Local and coal-field cinders are brought to the plant by truck. When the accompanying photographs were taken, the cinders were being hand-screened in the yard and shoveled into a small bottom-dump dolly car which ran on a narrow-gauge track from the yard to a position directly over the mixer. By the time this article appears in print a crusher, elevator and overhead bin arrangement will be in operation for the handling of cinders.



• B. T. Barnett, owner and manager, pinch-hitting for the mixer-man—not an uncommon sight in plants today.

The cement and water are hand-fed into the 12-cubic-foot Stearns mixer which discharges into a vertical skip-hoist. The mix is dumped from the skip-hoist into an overhead steel hopper, and flows by gravity through chutes into the two Kirkham vibrating block machines located below. These two machines are at present producing about 2,000 units per 8-hour day. Wood pallets are used exclusively, and the blocks are conveyed by hand from the machines into the curing rooms.

• The vibrating block machines. The steel chutes above have swing gates to control the flow of material to the machines.

When the two curing rooms are filled, they are sealed and 50-pound live steam is injected for 3 hours, followed by one or two cycles of hot-water spraying. After 12 hours under roof, the blocks are loaded on small mine-type flat cars and transferred to the storage yard.

• Skip hoist discharging mix to hopper above the block machines.

As soon as materials and equipment become available the company plans to purchase metal racks and a Barrett-Cravens jack-lift truck to reduce the labor involved in handling blocks. A concrete runway will be laid in the storage yard. The two-story plant building which was erected 3 years ago, has 7,000 square feet of floor space, and is

of cinder block construction. In an adjoining building there is a well-equipped machine shop for maintenance and repair work. The equipment includes a Westinghouse electric welder.

Block machine operators in this plant are paid on a piece-work basis. The rate is one cent per unit produced, which brings the average daily earnings of each operator to about $10. Both the owner and the operators appear to be well satisfied with the operation of the plan, and at their request a similar basis of payment for other employees is now being considered.

B. T. Barnett is owner and manager of the Marion Cinder Block Manufacturing Company and it is largely through his personal efforts that the plant's productive capacity has been increased so materially in the past two years.

Ready-Mix (*from page 142*)

vember, 1944, a total of 65,565 projects contemplated for the post-war period and calling for an estimated expenditure of $12,375,490,000. More than a third of these projects, or 23,811, were then in the design stage and their total estimated cost was $5,946,765,000.

This total of planned work, the speaker pointed out, exceeds by 86 per cent. the total volume of all construction in the United States in 1938, by 68 per cent. the total 1939 volume, and by 48 per cent. the volume in 1940, the last pre-war year. He expressed the belief that construction in the first 12 months after victory will probably be about equal to the volume of 1938.

Mr. Holden presented the following figures for the 37 eastern states:

Type of Construction	Planned for After the War	1938 Actual Construction
Private:		
Non-residential	$ 998,273,000	$ 499,819,000
Residential	645,503,000	899,561,000
Heavy construction	171,686,000	92,828,000
Total private.	$1,815,462,000	$1,492,208,000
Public:		
Non-residential	$ 881,793,000	$ 572,318,000
Residential	172,366,000	86,226,000
Heavy construction	3,077,144,000	1,046,176,000
Total public.	$4,131,303,000	$1,705,720,000
Grand totals	$5,946,765,000	$3,197,928,000

In commenting on these post-war plans, Mr. Holden said that the amount of private residential work is much too small and the volume of public heavy construction is large out of all proportion to a balanced program. He added, however, that the deficiency in private residential plans is a statistical rather than a real deficiency for the reason that

(*Continued on page 145*)

N.C.M.A. Holds Meetings of Directors and Committees

New officers of the association, left to right, are P. E. Bohm, Deane Lynde, Henry Buchholz and C. E. Ehle. F. W. Reinhold, retiring president, on the right.

IN lieu of its annual convention which was cancelled in compliance with a recent order of the Office of Defense Transportation, the National Concrete Masonry Association held meetings of the board of directors and of the various technical committees in the Hotel Sherman, Chicago, February 8 and 9.

Routine business of the association was conducted in several sessions of the Board of Directors and the standing committees on publications, membership and curing met and progress reports were made to the Board of Directors.

Separate division committee meetings, covering cinder, Waylite, Celocrete and Superrock aggregates, were held on February 9. The discussion in the Celocrete committee meeting dealt principally with supply and specifications, and it was brought out that due to manpower and material shortages the new plant at South Chicago is not expected to be in operation until early spring.

The basic Celocrete research program now underway was outlined and discussed. Having for its first objective uniformity of quality through manufacturing controls, field and laboratory investigation will be closely correlated. Expanded slag in clinker form from processing machines will be studied for the entire range of operating conditions.

Following this basic work will come the study of physical properties of Celocrete. Standard tests for density, specific gravity, soundness, and weatherability will be made. Since the entire purpose of the program is to provide a lightweight aggregate for concrete of several uses, the investigation of these concretes and concrete products will be exhaustive. Standard tests of normal performance including strength, density, absorption and durability are included. Other properties of masonry units such as thermo-conductivity, sound absorption and volume change will be given careful study. It is hoped that the results of this research program will add measurably to the knowledge of lightweight aggregates and concrete.

The meeting of the natural aggregate committee was held in connection with a luncheon at which those who attended were the guests of producers in the Chicago area.

The new officers of the association are C. E. Ehle, president, Deane R. Lynde, first vice-president, Edwin P. Weese, second vice-president, Paul E. Bohm, third vice-president and Henry Buchholz, secretary-treasurer.

Henry Buchholz, C. W. Chandler, Paul E. Bohm and Fred M. Kettenring were elected to the Board of Directors to serve three year terms.

most single-family house projects are started with only a brief period of advance planning. Because of this fact private residential building may be expected to play a very large part in construction activity in the early post-war years.

In the field of public projects, the speaker said, the total of all planned public work is greater than the sum of all private and public construction in the years 1938, 1939 and 1940 combined. He expects that delays of the transition period from war to peace will limit construction to approximately the 1938 level, and, therefore, if all the public projects planned should be put under contract immediately or soon after the end of the war, they would tend to crowd out every potential private project included in the figures given above. This danger, that the active pushing of public projects may intensify the competition for labor and materials between that type of construction and private projects, has been recognized by the federal government, as shown by the report of James F. Byrnes, director of the Office of War Mobilization and Reconversion, to the President last September. Therein it was said that "The demand for construction projects exists. As a rule those governments (*i.e.*, states, counties and cities) have the funds for those projects. In communities where there is no unemployment following V-E day it would be unfortunate if large public works were undertaken. It would be more unfortunate if they were not undertaken in communities where there is unemployment."

Large as the figures quoted by Mr. Holden appear, they are, he said, growing at the rate of approximately $21,000,000 every business day and will continue to grow up to the day of victory. These figures do not include deferred maintenance work, repair or minor modernization jobs, which will in themselves constitute a large post-war market.

G. Donald Kennedy, vice-president of the Automotive Safety Foundation, Washington, D. C., had been scheduled to give an address on *The One Per Cent. Highway System* at the convention that was to have been held, but he gave a considerably altered version of it to the board meeting. He explained the importance of the Federal Highway Act of 1944 and its effects on future highway development. He pointed out that the act sets up a $3,000,000,000 program, which sum is to be provided jointly by the federal and state governments. One-sixth of this sum—that is, one-third of the federal government's contribution of $1,500,000—will be apportioned to the states at the rate of $500,000,000 a year for each of the three years covered by the act, and this sum is to be matched by the states. Of the federal government's annual contribution of $500,000,000, $225,000,000 will be used for the further development of the federal-aid highway system. This comprises 7 per cent. of rural road mileage, which has been under development since 1916, when the federal-aid program was initiated. Each year $150,000,000 of the remainder will be applied to the development of secondary rural roads—farm-to-market roads. The remaining $125,000,000 is to be expended for the development of highways within cities, the first time that funds have been allocated to this type of road improvement.

The speaker said that the new highway act presents several novelties: the provision of funds for urban highway development just mentioned, the introduction of urban population as a formula for the apportionment of federal funds, and the expanded program for secondary-road development. Other new features are the provision that the

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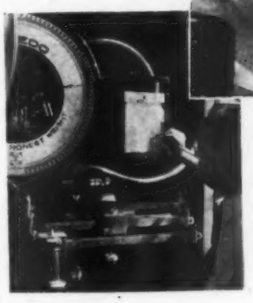

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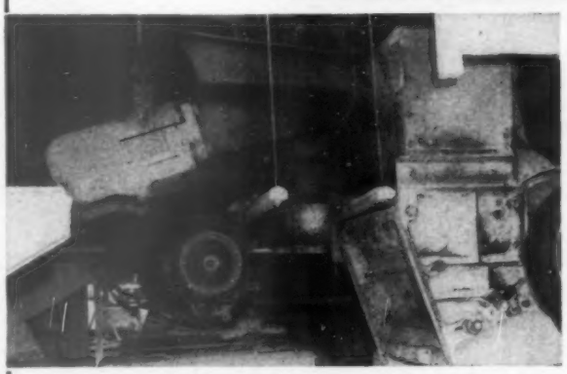

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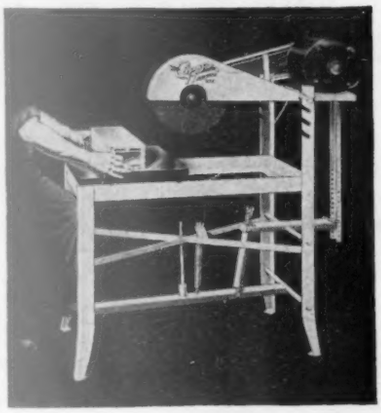
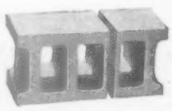
Clipper Masonry Saws

Your Special Size and Shape Brick or Concrete Block can now be "Tailor Made" at a moment's notice!



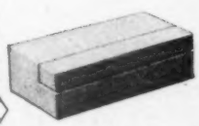
The new Clipper Multiple Cutting Principle makes possible faster cutting of every masonry material regardless of hardness.

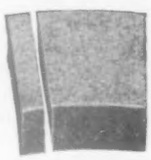
Here are a few typical examples of the speed and accuracy with which concrete products and fire brick can be cut.



This concrete block, converted into a special size, was cut completely in two in 19 seconds.

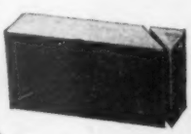
One of the many intricate cuts performed on first quality clay brick for heat treating furnaces, —made in 8 sec.





Rotary Kiln Blocks, cut to size for "key" bricks in rotary kilns, require only 10 sec. for completion of cut.

Basic refractories for steel furnaces or cement kilns must be accurately installed. This magnisite brick was cut in 12 seconds!



Clipper Saws are available for trial. Write for Descriptive Catalogs.

THE Clipper "CUTS RIGHT THRU" MANUFACTURING COMPANY

4029 MANCHESTER
ST. LOUIS, MISSOURI

cost of the rights-of-way is included as a part of the construction cost of a project (federal funds being expendable up to one-third of such right-of-way costs); the provision which ties the railroads down to a definite percentage of the cost of grade-crossing construction; the provision that 1.5 per cent. of the funds be spent for planning and research; the provision of a definite responsibility in the location of airports in relation to highways; and the provision for uniform signs, signals and markings on the federal highway system throughout the country.

Another important feature, the speaker said, is the provision for the selection by the states and the federal government of 1 per cent. of the rural highway mileage of the country for inclusion in a national system of roads. These will be the more important routes of travel and within the 7 per cent. federal system. This inter-regional highway system will consist of about 40,000 miles of highways, including the urban extensions, and will constitute an important factor in national defense. Mr. Kennedy said that it has been estimated that this 1 per cent. of our rural mileage will carry 20 per cent. of our total highway and street traffic.

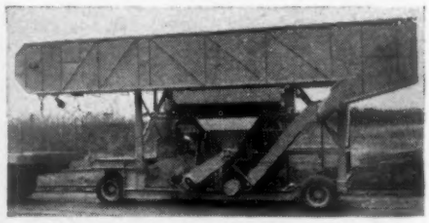
With reference to the status of highway planning, the speaker said that it is estimated that there are now completed plans for $400,000,000 of highway work and that $1,000,000,000 worth of highway work is represented by plans that are well under way. However, many of these plans, said the speaker, will not bear directly on the new program.

In answer to a question by Mr. Ahearn, Mr. Kennedy said that there are eight points with respect to state legislation set up by the Association of State Highway Officials: (1) Permissive legislation that will enable the state to carry on contractual relationships and execute work between the state and the counties; (2) similar relationships must be developed between the state and the cities so that the latter will be permitted under state law to carry out the engineering, the awarding of contracts, and the supervision of construction on federal-aid work within urban boundaries; (3) legislation is needed for the acquisition of the necessary right-of-way; (4) legislation that will permit immediate entry upon land that has been condemned for highway purposes is needed; (5) state legislation may be needed to implement the provision of the federal act dealing with grade separations; (6) as the federal law has a provision dealing with diversion of state highway funds to other-than-highway purposes, state laws may be needed to enable the state to qualify for its share of federal allocations; (7) state laws may be necessary to make possible the development of the proper relationships between airports and highways as required by the act; and (8) legislation may be needed to make possible the selection of the roads to be included in the 1-per cent. system.

In explanation of a question raised by another member of the board, Mr. Kennedy said that the diversion clause in the 1944 act is no stronger than the one in the 1934 act, which said merely that, in order to be eligible to receive federal aid, a state could not divert more highway-tax funds to other-than-highway uses than it was at that time diverting.

H. F. Thomson, chairman of the association's committee appointed to consider plans for a safety contest to be set up and conducted annually among its members, pointed out two objectives of such a contest: (1) the problem of reducing costs, and (2) the question of public relations.

ERIE
PORTABLE PLANT
MAKES CONCRETE
ON THE JOB



• Make 20 to 40 yards of specification concrete per hour on the job. One-man operation and a helper to handle cement bags. One hour to set up. Moves from job to job. Write for booklet.

ERIE STEEL CONSTRUCTION CO • ERIE, PA.
AggreMeters • Buckets • Concrete Plants • Traveling Cranes

Through the development of a program that will reduce accidents Mr. Thomson believes that the cost of compensation insurance can be reduced materially; he mentioned the case of one ready-mixed-concrete manufacturer who could not buy compensation insurance, and ultimately an insurance company was ordered to insure him on the basis of

• Joseph H. Dixey whose retirement as vice-president of Transit Mix Corporation, New York, to engage in consulting practice in the field of concrete plant design, construction, operation and related problems, was reported in the February issue of Pit and Quarry.

cost plus loading, which made it very expensive. Any safety program to be effective must, in Mr. Thomson's opinion, embrace not only the accidents that occur within ready-mixed-concrete plants but also those that occur to their mobile equipment, to the public and to the public's property.

The standards formulated by the Truck Mixer Manufacturers Bureau and submitted to the board were approved. They provide for a limited number of sizes of machines that shall be considered standard and set out their capacities when used as mixers and when used as agitators.

The Nominating Committee presented to the board for submittal to the membership and election by letter ballot the names of the following Members:

For president: Alexander Foster, Jr. (Warner Company, Philadelphia);

For vice-president: C. W. Shirey (Waterloo, Iowa);

For secretary-treasurer: Alexander Johnson (Central Concrete, Inc., Brooklyn, New York).

For additional members of the board of directors:

E. K. Davison (J. K. Davison & Brother, Pittsburgh, Pennsylvania); S. H. Moore (San Diego Transit-

HANDLING + Processing + HANDLING + Assembling + HANDLING + Packing + HANDLING + Storage + HANDLING

HANDLING—the Common Denominator of PRODUCTION

LET MEN DIRECT POWER—NOT GENERATE IT!

Only three kinds of work are done on anything: processing, assembling, handling. No production, storage, transportation or delivery of goods can proceed without handling. You can't take it for granted if you're out to get production.

Handling, the largest single labor cost inside plants, offers a most logical place to save time, manpower and money. Towmotor places goods *on the right spot at the right time.* Get the story—write for the Towmotor DATA FILE *today.*

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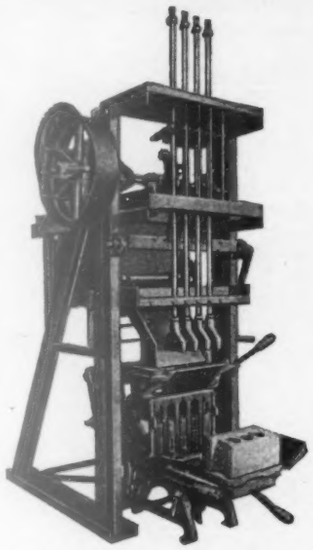
THE ONE-MAN-GANG

TOWMOTOR CORPORATION • 1228 E. 152ND STREET, CLEVELAND 10, OHIO



Recognized Everywhere

The Hobbs Jr. Face-Down Block Machine is recognized everywhere as the great general purpose machine of the concrete-products industry. Famous for its wide range of sizes and the variety of blocks it can produce. As illustrated, it is equipped with striking and finishing device, shown under the floor-type tamper and with power feeder.

Hobbs block machines, Anchor tampers, Anchor Jr. strippers, Stearns power strippers and Jolt-crete, Stearns mixers, and Cast Iron and Press Steel pallets, Straublox oscillating attachments, etc. Repair parts for: Anchor, Ideal, Universal, Stearns, Blystone mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
1191 Fairview Ave. Columbus, Ohio

Mixed Concrete Company, San Diego, California); T. E. Popplewell (Fort Worth Sand & Gravel Company, Inc., Fort Worth); Louis C. Schilling (I. E. Schilling Company, Miami), and, in accordance with the by-laws, the three latest past presidents: Joseph H. Dixey (New York, New York); James F. McCracken, American Builders' Supply Company, Louisville), and Stephan Stepanian (Arrow Sand & Gravel Company, Columbus, Ohio).

(To be continued in the April issue)

Concrete Masonry Units Viewed by Architects

The exposition of the National Association of Home Builders, which was held in Chicago in January, attracted more than 3,000 architects and builders from all over the country.

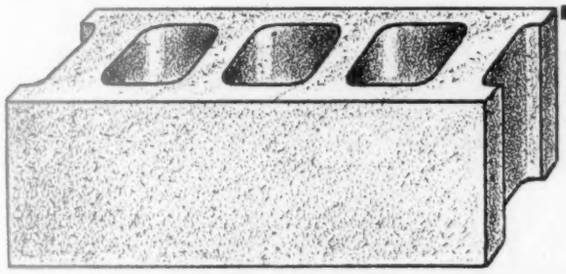
At the exposition the National Concrete Masonry Association displayed a full size concrete masonry wall section in the main exhibit hall, showing the various standard patterns and joint treatments. Sample concrete units of many types and precast floor sections were also exhibited at the six-day meeting.

Lt. j.g. P. M. Park, vice-president of Besser Manufacturing Company, Alpena, Mich., on leave of absence was a visitor at the recent meeting of the

Lieut. Park

directors of the National Concrete Masonry Association in Chicago. Lt. Park is connected with the Bureau of Ships, U. S. Naval Reserve, Washington, D. C.

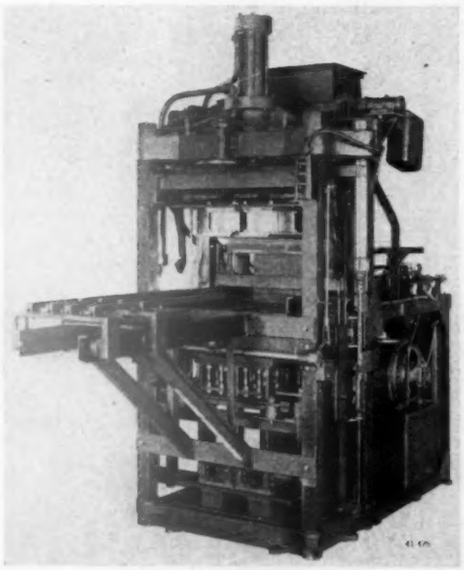
Your Country is still at war—are you?



PRECISION PRODUCTION CONCRETE BLOCKS

with the

KENT Vibra Press



"THIS IS IT" — the KENT automatic, hydraulic Vibra Press for large-scale block producers.

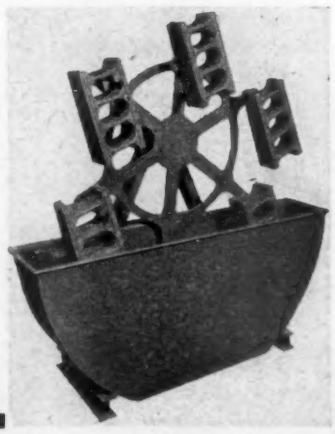
Smooth, steady pressure, plus vibration insures perfectly shaped blocks of uniform density.

Normal production rate over 4000 blocks per day, in varying sizes and shapes.

A finely engineered and built machine, reliable for many years of low-cost service.

The KENT line of equipment includes Mixers, Block Machines, Aggregate Feeders, Elevating and Transmission Machinery, Pallets and Accessories. Write for complete information.

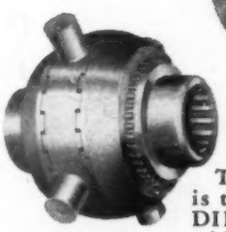
KENT Pallet Oiler and Cleaner



THE KENT MACHINE CO. CUYAHOGA FALLS, OHIO

THORNTON gives positive DRIVE TO BOTH REAR AXLES *Without Axle Fight*

This is the Thornton Drive Bogie, consisting of 2 driving axles; 2-speed gear case assembly with *Automatic-Locking* Differential in ring gear "walking beam" type springs; wheels; 8 new tires.



Trucks operating off the highway must have 2 rear driving axles with *positive drive* to provide maximum traction.

The THORNTON *4-Rear-Wheel* DRIVE has proved, through years of grueling work and severe war demands, that it does deliver "go ahead" traction under the most obstinate conditions (and provides 100% more payload; up to 50% gradability; and, certain definite operation economies).

Whether you haul logs from the woods; sand and gravel from the pits; coal from the mines; spread lime over soft fields; or haul heavy oil field equipment; you need the maximum traction provided by the Thornton Drive. Thornton equipped trucks have the power and traction to operate in all kinds of weather, over all kinds of roads. They will work many more days per year than a conventional truck having only one driving axle.

However, *positive drive* to the rear driving axles is not all that is required to give you the greatest number of truck-work days per year. The Drive also must have *Differential Action* to avoid "axle fight" which causes tires to scuff, wastes fuel, and destroys ring gears, pinions, joints, etc.

* NO WPB RELEASE NECESSARY

The heart of the THORNTON DRIVE is the THRONTON *automatic-locking* DIFFERENTIAL—an exclusive feature which provides both POSITIVE DRIVE and DIFFERENTIAL ACTION.

Thornton's solution to the problem of obtaining "off the highway traction" without having "axle fight" represents one of the outstanding contributions to the automotive industry during the past 30 years. This *automatic-locking* DIFFERENTIAL, as an integral part of the Thornton Drive, enables the truck to drive as long as there is traction on the wheels of either axle. Its automatic Differential action permits an over or under running of the ring gear of either axle as required by the contour of the road bed, whether moving forward or in reverse.

When the THORNTON DIFFERENTIAL is also used in place of the conventional differential in each driving axle, the ultimate in traction is provided, because *all wheels must rotate* when power is applied.

FREE: *Mail coupon for descriptive folders and full details about the Thornton Four-Rear-Wheel Drive.*

EVERY

THORNTON 4-Rear-Wheel DRIVE

INCORPORATES A

THORNTON Locking DIFFERENTIAL

ALSO AVAILABLE FOR TRUCK AXLES

Thornton Tandem Co.

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Please send me catalog of facts on changing my 1½-2 ton truck into a heavy duty truck.

Name _____

Address _____

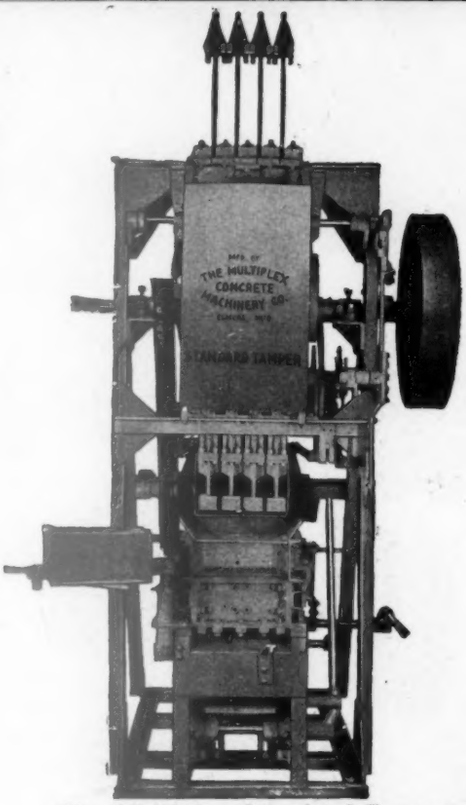
City _____ State _____

Make of Truck _____ Year _____

Used for _____

The CONCRETE MANUFACTURER

A Distinguished Line of Quality



The Multiplex Standard Tamper

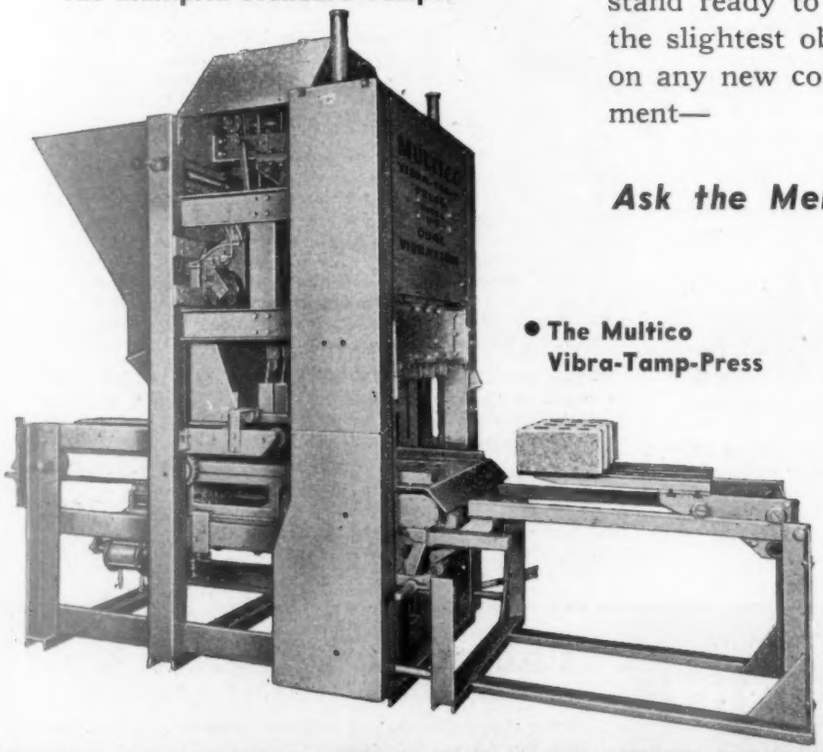
For more than 38 years the name MULTIPLEX has been a symbol of quality on concrete products plant equipment.

The name MULTIPLEX on a concrete block machine or a concrete mixer guarantees long years of dependable, low-cost, trouble-free service. Thousands of satisfied MULTIPLEX users will gladly back up that statement.

After the war, when we and our friends in the concrete products industry can again turn to building for peace, MULTIPLEX will be able to offer better equipment than ever.

For your present requirements we will serve you to the best of our ability. And for your future needs MULTIPLEX engineers stand ready to advise and counsel without the slightest obligation. Before you decide on any new concrete products plant equipment—

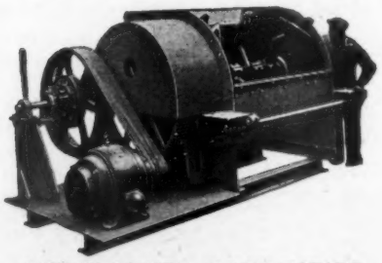
Ask the Men Who Use MULTIPLEX



• The Multico Vibra-Tamp-Press

A Better Mix At Lower Cost

Per Batch! Per Yard! Per Day!



MULTI-MIXER CAPACITIES ARE FROM 5 to 60 CUBIC FEET

THE MULTIPLEX CONCRETE MACHINERY COMPANY

Working for War **ELMORE, OHIO** *Preparing for Peace*

Concrete Products Machinery

Make 6" to 48" CONCRETE PIPE with ONE Machine

Produce Pipe Profitably

Universal's "All-Purpose" Machine produces Concrete Pipe in all sizes from 6" to 48"—and shows you a worth-while profit. With a tamping capacity of 680 strokes per minute, your product is more dense, durable, finished in appearance. We can also outfit you for making larger sizes, up to 135".

Write today for Catalog and Details.

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Almost Any Job of Concrete Can be Done Faster with JAEGER TRUCK MIXERS

"HIGH DUMP"

Millions of yards of Jaeger Truck-Mixed Concrete on major war work (exceeding the output of all other makes combined) prove the advantages of these motorized concrete plants. Nimble, flexible and fast, they speed placement, solve problem of extended or continuous pours.

THE JAEGER MACHINE CO.,
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Mixers—Pumps—Hoists
Paving Equipment

or "LOW CHARGE" Type

The "Quinn Standard"

FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 30 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

Quinn Heavy Duty Pipe Forms

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for any diameter pipe from 12 to 84 inches—tongue and groove or bell-end pipe at lowest cost.

WRITE TODAY

Complete information, prices and estimates sent on request. Also manufacturers of Quinn Concrete Pipe Machines.

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BARRETT LIFT-TRUCKS

ONE MAN HANDLES 48 BLOCKS NO BREAKAGE

Handle your green concrete products the way that more than 800 other concrete products plants do, WITH BARRETT LIFT-TRUCKS EQUIPPED WITH A SUPER-SPRING FRAME AND RUBBER TIRES. Eliminate breakage—joggling out of shape and spoilage. Save time, money and labor by eliminating all unnecessary handling and breakage. Take your blocks direct from the machine to the curing room—with ease and dispatch. One man handles 48 blocks of the 8x8x16 size—or, 32 blocks of the 8x12x16 size. Write for illustrated circular.

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CONCRETE BURIAL VAULTS

America's Finest Molds and Lowering Device

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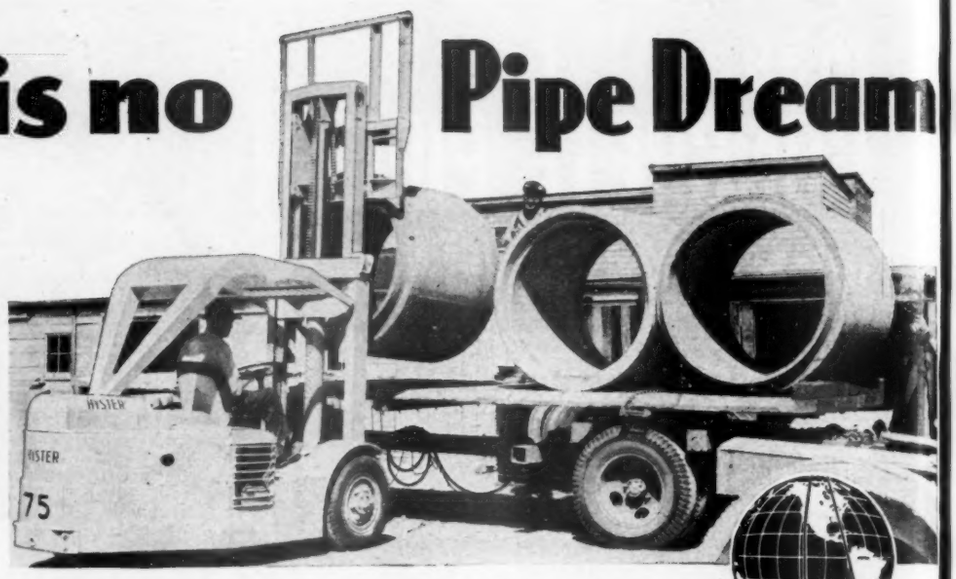
The CONCRETE MANUFACTURER

This is no Pipe Dream



The HYSTER 75 Fork Lift Truck really solves materials handling problems. The pipe in the picture is 54" concrete culvert. Powerful hydraulic mechanism provides easy, positive lifting of loads, up to 7500 lbs. Pneumatic tires insures good traction **anywhere.**

Through trunnion steering, it turns in its own length. Standard controls; easy to operate. Send for booklet on the HYSTER 75 — learn how it solves materials handling, saves time and lowers costs.

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ERICKSON Power Lift Truck

For better handling of concrete blocks.

BRINGS COSTS DOWN ◀ ▶ SENDS PROFITS UP

Full details in Bulletin

It's easy for one operator to handle more loads with less breakage by shifting and piling concrete blocks with the ERICKSON Power Lift Truck.

This is a fast, husky and flexible machine, electric welded all steel construction, and equipped with hydraulic platform raiser and automatic relief valve.

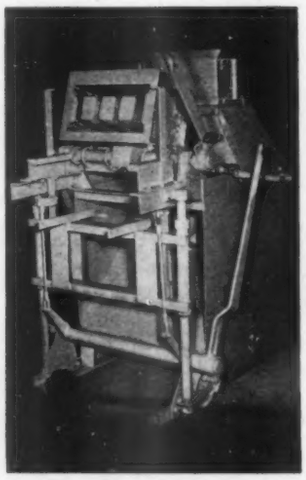
An ERICKSON will take the hardest handling your yard can "dish out", and prove itself your best investment. There's a size for every job.

ERICKSON SPECIAL EQUIPMENT MFG. CO.
14th Ave., N. E. Minneapolis, Minnesota

The Kirkham Vibrator

CONCRETE BLOCK MACHINE

- *Sturdy Construction.*
- *Moderate in Price.*
- *Low Upkeep.*
- *Simplicity of Operation.*



Various size molds quickly interchangeable.

Liner plates in molds replaceable when worn.

Complete vibration insuring dense, durable blocks.

Plain wood or steel pallets adaptable to all boxes.

Concrete Transport Mixer Co.
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St. Louis 12, Missouri

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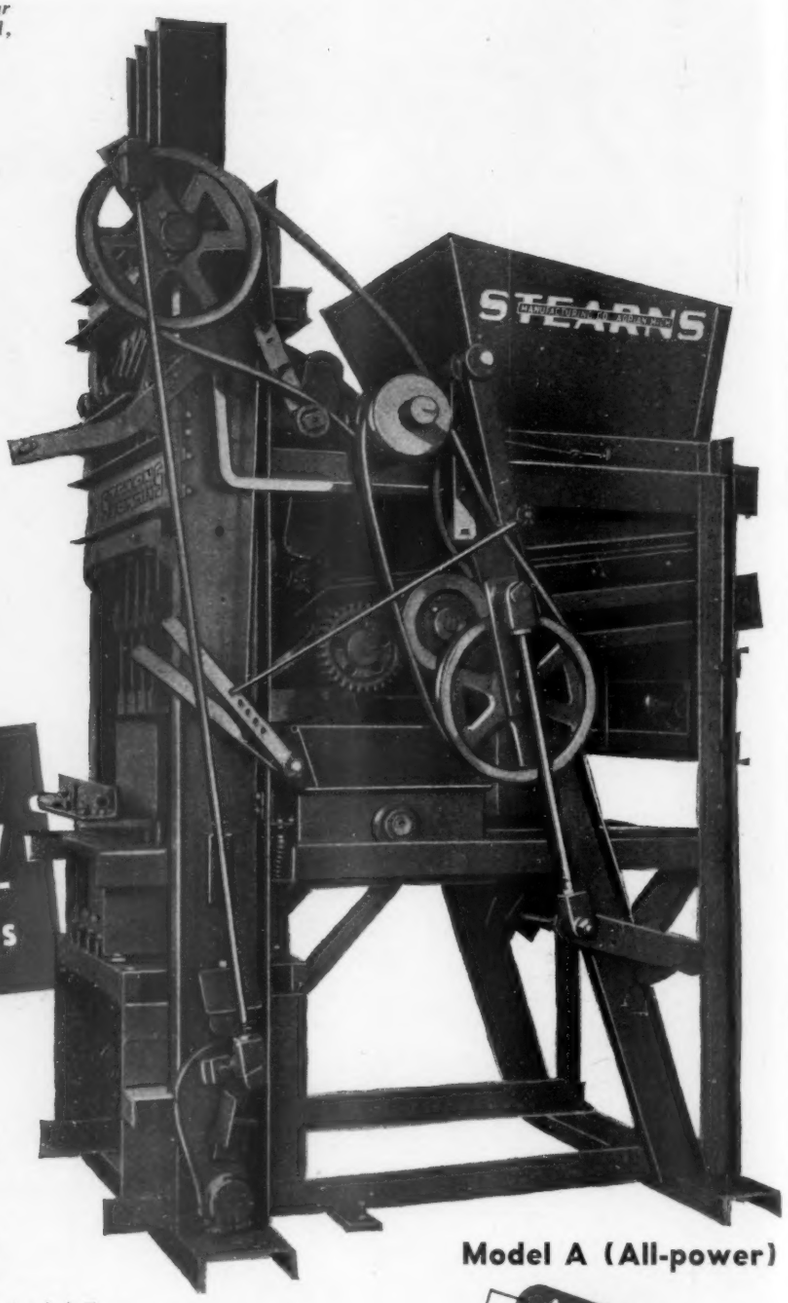
IN YOUR POST WAR PLANT
MODERN ENGINEERING WILL COUNT:
COUNT ON THE BUTLER ENGINEER!
The BUTLER BIN Company
WAUKESHA, WISCONSIN

...Second "E" Flag star awarded September 11, 1944.

STEARNS CLIPPER STRIPPER

Produces more blocks per man per day than any other machine with comparable power operations



Model A (All-power)

- **Four separate models** with power tampers ranging from manual feeding and stripping to all-power.
- **Capacity:** Model E produces 100 blocks per hour—Model A, 240 per hour.
- **Interchangeable parts:** Starting with Model E you can, **without sacrifice,** make progressive additions of power equipment until you have all-power (Model A).
- **Low in first cost, low in maintenance,** three outstanding features of Stearns Clippers are **adaptability, simplicity, efficiency.**
- Cored pallets are used.

Write today for new Clipper folder describing all four models and attachments.

Performance **Speaks Louder than Words**

ASK any STEARNS owner.

A FEW OF HUNDREDS

PLATTE VALLEY CEMENT TILE CO.
Fremont, Nebraska
3 Clipper Strippers

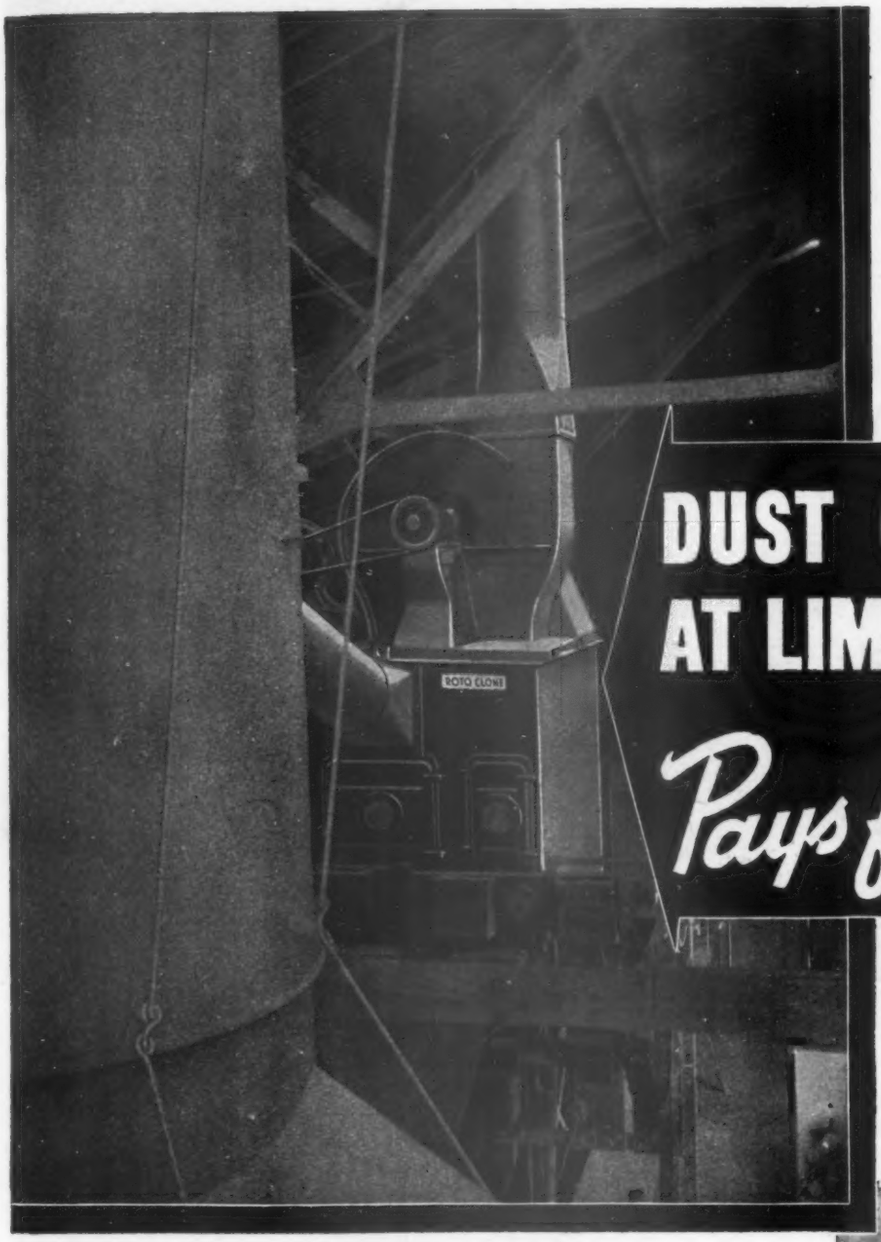
MARION BLDG. SUPPLY CO.
Marion, Ohio
1 Clipper Stripper

HOUSTON CONCRETE PRODUCTS CO.
Houston, Texas
1 Clipper Stripper

STEARNS MANUFACTURING CO. - ADRIAN, MICH.

GENE OLSEN, PRESIDENT

Also manufacturers of Jolterete Block Machines licensed under the basic Gelbman Vibration Patents, Mixers, Skip Loaders



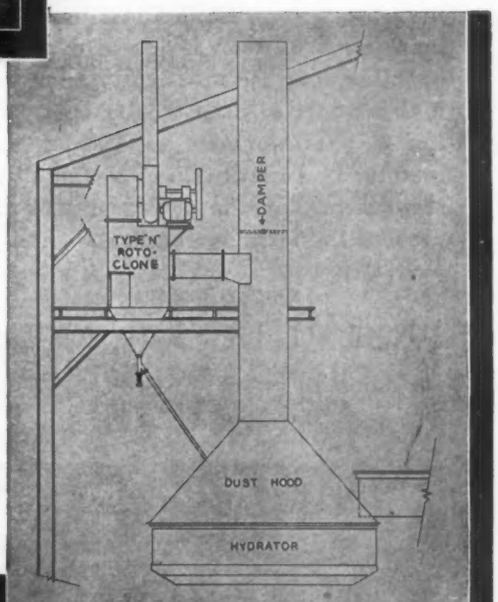
SEND FOR TYPE N ROTO-CLONE
BULLETIN NO. 277

DUST COLLECTION AT LIME HYDRATOR *Pays for Itself!*

- **Recovers 1½ Tons of Lime per day**
- **Saves Roof Cleaning**
- **Eliminates Neighborhood Complaints**

Pictured here is an entirely new application of the Type N ROTO-CLONE to lime dust collection. Not only is all dust removed from the vented steam and air but the lime slurry resulting from the cleaning operation is salvaged and piped to the hydrating pan automatically and continuously. The ROTO-CLONE does this remarkable job without cost because the savings not only pay for the current used but will also, in time, "write off" the original cost of the installation.

The Type N ROTO-CLONE cleans by means of a water curtain induced by the flow of air. There are no moving parts or narrow passages to be obstructed by lime dust deposits. Capacities from 1,000 to 25,000 cfm. Complete information sent promptly on request.



TYPE N ROTO-CLONE
ventilates 12′ Clyde Hydrator

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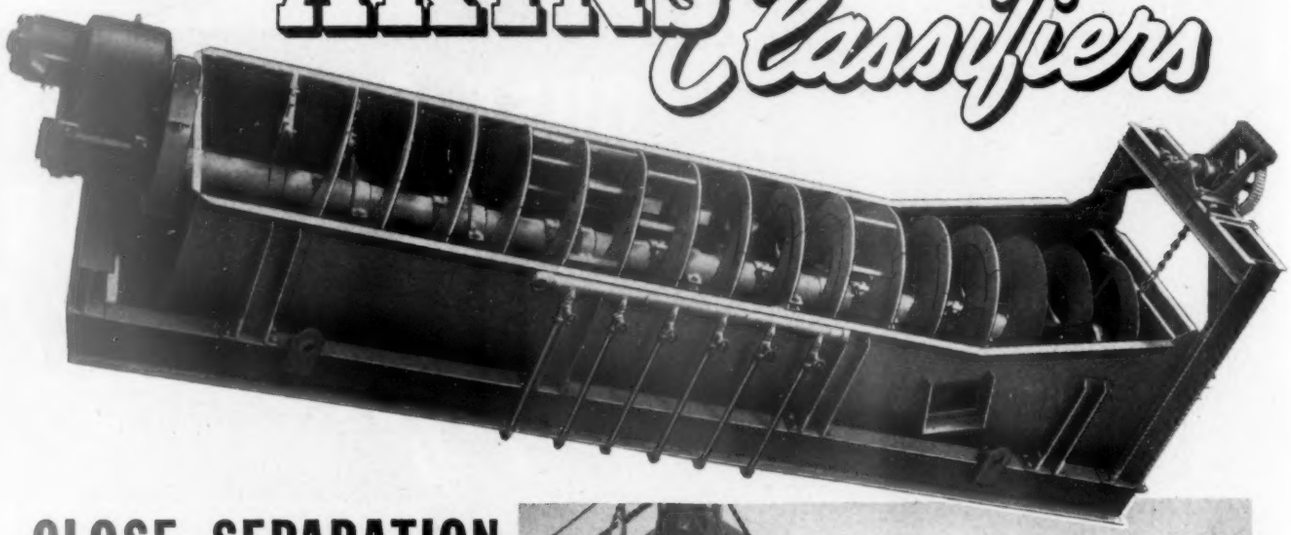
Incorporated
192 Central Avenue — Louisville 8, Kentucky
In Canada: Darling Brothers, Ltd., Montreal, P. Q.

AAF
AMERICAN AIR FILTERS

ROTO-CLONE
FOR ROCK PRODUCT DUST CONTROL

INVESTIGATE THIS *Better* WAY TO WASH SPECIAL INDUSTRIAL SANDS

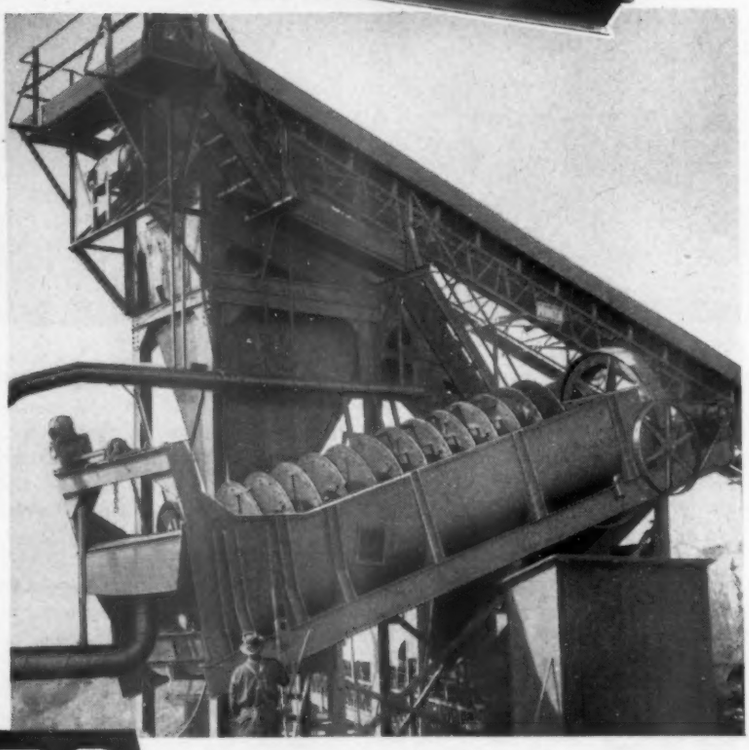
with **AKINS** *Classifiers*



CLOSE SEPARATION
for GLASS and FOUNDRY Sand

If you supply washed sand for special uses — such as for foundry moulding and glass making, it will pay you to investigate the AKINS Classifier. This machine produces sands to exacting specifications for practically any special industrial use. Power costs are low . . . maintenance negligible. Unloading is unnecessary to start after shutdown. Let one of our engineers present the facts in detail.

LOWDEN DRYERS
SKINNER MULTIPLE HEARTH ROASTERS
BALL, ROD & TUBE MILLS
SMELTING EQUIPMENT

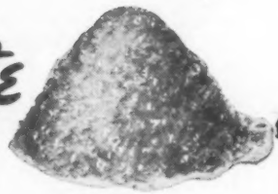


COLORADO IRON WORKS Company

Canadian Locomotive Co., Ltd., Kingston, Ont., Can.
Vancouver Iron Works, Ltd., Vancouver, B. C., Can.
Head, Wrightson & Co., Ltd., Stockton on Tees, England
Head, Wrightson & Co., (So. Africa) Ltd. Johannesburg
The Clyde Engineering Co., Ltd., Granville, N. S.W.

MAIN OFFICE & WORKS: DENVER 2, COLO., U. S. A.

The Case of the Oyster Shells the Dolomite and the Coke



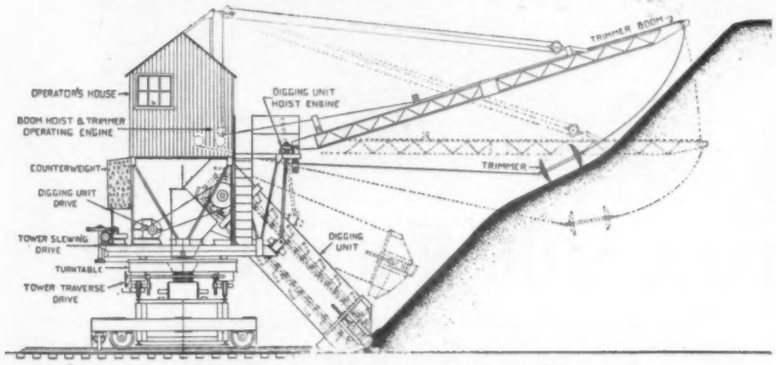
It is bad enough to have one difficult materials handling problem. But when you have three, then it really becomes serious. That is the fix in which a certain chemical company found itself.

There were oyster shells and dolomite and coke—all to be unloaded, stocked in storage piles and reclaimed for use. The oyster shells tended to arch and pack; the dolomite was crystalline in form; the coke was frangible and friable. Each presented its own peculiar difficulties in handling, yet all would have to be handled on the same unified system.

The problem was put up to Robins. Some parts of it were easy—the unloading, storing and conveying; the answers were drawn from our long and varied experience. But the reclaiming was something else again. Because the oyster shells tended to arch and pack, because the coke was so easily broken, traditional reclaiming methods were not adequate; the shells would not flow and the coke would break.

Nothing in existence up to then was able to do the job properly. So Robins engineers had to invent something. We call it a "Digging Reclaimer." It under-mines the material—working along the bottom of the pile instead of the top. It reduces degradation and breakage to an absolute minimum. It reduces the cost per ton of material reclaimed to a figure never before reached.

Thus another difficult problem was solved. Thus another innovation was added to an already imposing list of Robins "firsts." Thus another company was able to obtain celerity, efficiency and economy in the handling of its materials.



Cross-section view of Robins Digging Reclaimer

Solving difficult bulk-materials handling problems has been a Robins habit since 1896. Perhaps you face one now. If so, you are invited to submit the facts to Robins for unbiased, non-obligating analysis. When writing, please address Dept. PQ-3.

ENGINEERS, MANUFACTURERS AND ERECTORS OF MATERIALS HANDLING MACHINERY

ROBINS *makes:* BELT CONVEYORS · COAL AND ORE BRIDGES · BUCKET ELEVATORS · CAR AND BARGE HAULS · CAR DUMPERS · CAR RETARDERS · CASTINGS · CHUTES · CONVEYOR IDLERS AND PULLEYS · CRUSHERS · FEEDERS · FOUNDRY SHAKEOUTS · GATES · GEARS · GRAB BUCKETS · PIVOTED BUCKET CONVEYORS · VIBRATING SCREENS · SCREEN CLOTH · SELF-UNLOADING BOAT MECHANISMS · SKIP HOISTS · STORAGE AND RECLAIMING MACHINES AND SYSTEMS · TAKEUPS · LOADING AND UNLOADING TOWERS · TRIPPERS · WEIGH LARRIES · WINCHES · WINDLASSES

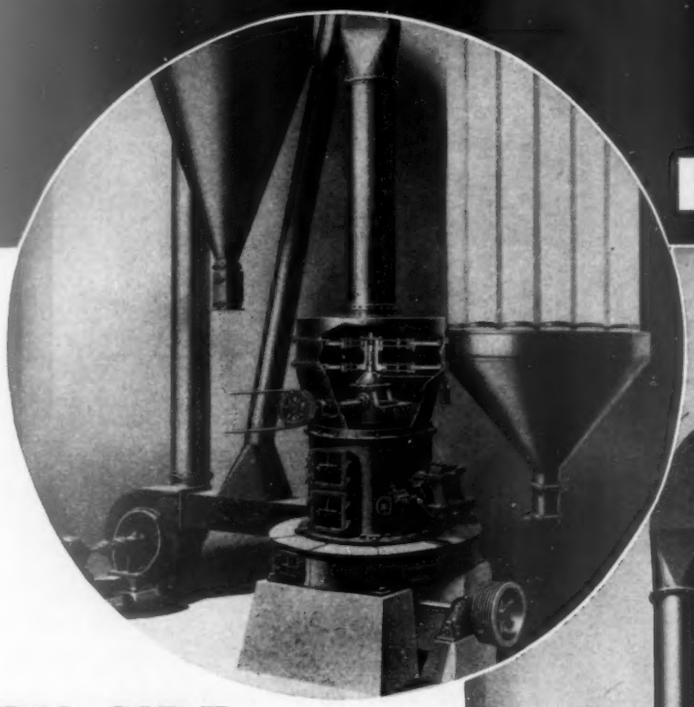
ROBINS
CONVEYORS
INCORPORATED
Founded in 1896 as Robins Conveying Belt Co.
PASSAIC • NEW JERSEY

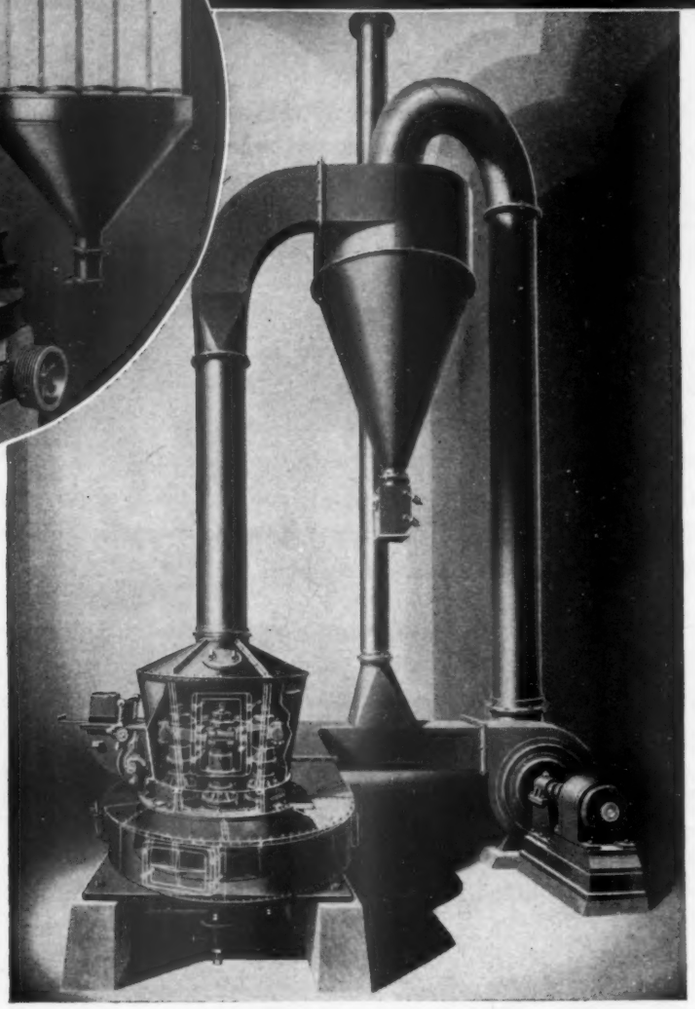
FOR MATERIAL AID IN MATERIALS HANDLING . . . . . It's **ROBINS**

PHOSPHATE ROCK GRINDING

with Raymond

ROLLER MILLS





HIGH SIDE ROLLER MILL For Direct Application

to the soil by the "Triple A" program, finely pulverized phosphate rock testing 85% to 95% through 200-mesh or better is required. This is economically produced with the whizzer-type High Side Roller Mill. Fineness control is effected by changing the speed of revolving whizzer blades, and the mill gives extra large capacities of uniform finished material. Ask for Catalog No. 51.

For Acidulation→ where medium fineness is required

LOW SIDE ROLLER MILL

This is the standard mill for grinding materials to 100-mesh fineness, and it has been the stand-by of the fertilizer industry for many years. It is a low-cost producer of ground phosphate rock, agricultural limestone and similar products. Easy adjustments in separator for fineness control. Ask for Catalog No. 34.

RAYMOND
PULVERIZER DIVISION

COMBUSTION ENGINEERING COMPANY, INC.

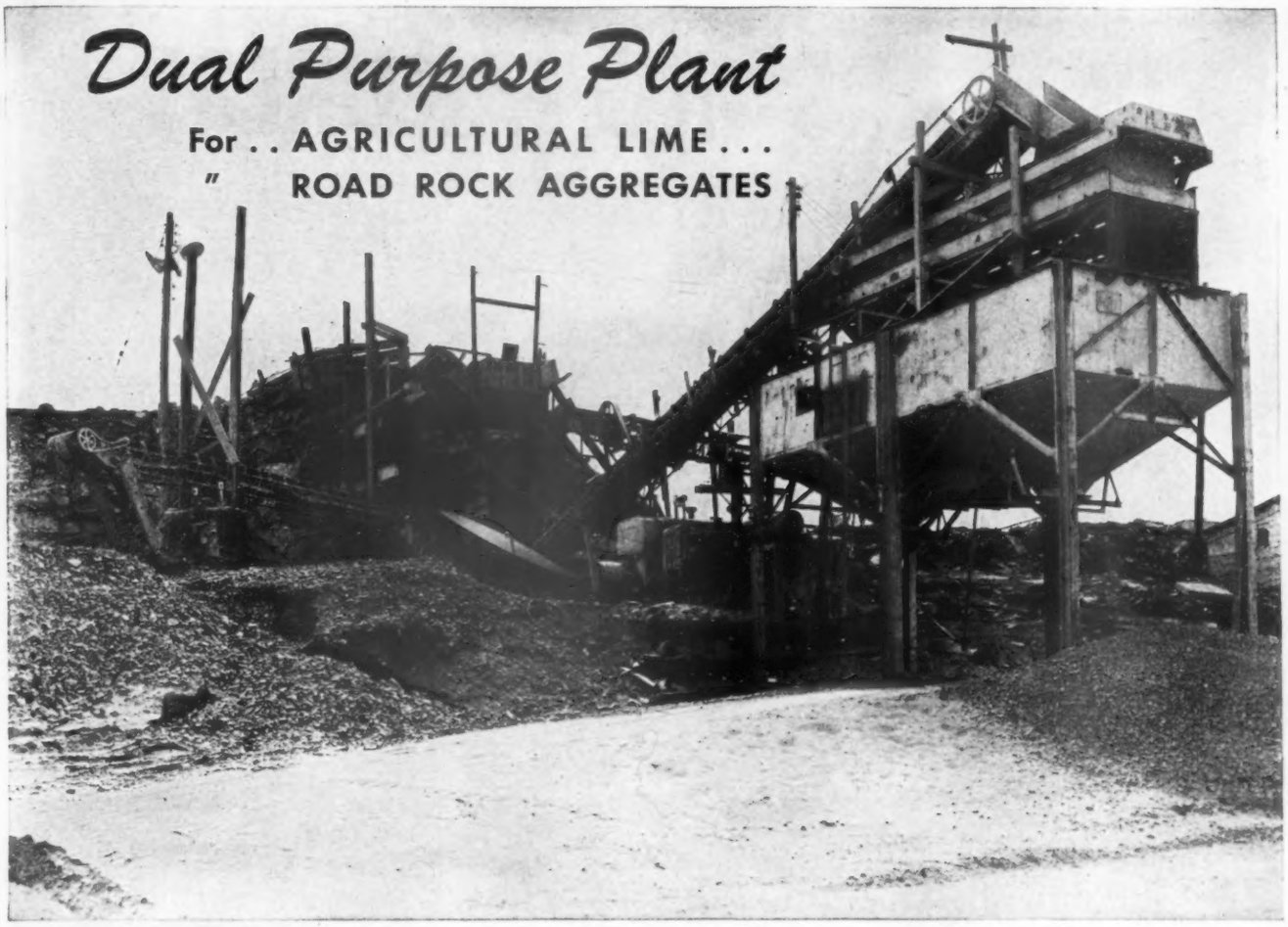
Sales Offices in Principal Cities
Canada: Combustion Engineering Corp. Ltd., Montreal

1321 North Branch Street, CHICAGO 22, ILL.

GRUENDLER CRAFTSMANSHIP SERVING INDUSTRY FOR SIXTY YEARS

Dual Purpose Plant

For . . AGRICULTURAL LIME . . .
" ROAD ROCK AGGREGATES



Feed . . . . . More than a 24"x36" Jaw can take

Product . . More agricultural lime (and Road Rock too)

Crusher . . A Gruendler 6XC Hammermill

True, the Gruendler Company also builds JAW CRUSHERS and ROLL CRUSHERS,—the kind that stand up and take it on the toughest kind of material. But for this type of rock plant, we believe the versatile Gruendler Hammermill is Best. No other type of Unit can do both jobs so well. Let Gruendler's 60 Years Experience recommend the right Equipment for your plant. YOU'LL BE SURPRISED WHEN YOU COMPARE POWER, PRICE AND PRODUCTION.

WRITE FOR BULLETINS • BLUE PRINTS • DATA

GRUENDLER

CRUSHER and PULVERIZER CO., ST. LOUIS 6, MO.

18 YEARS--NO FAILURES!

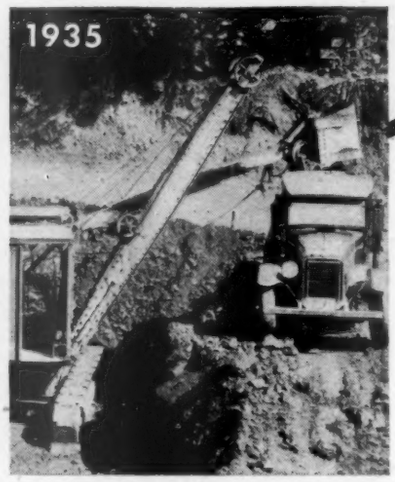
More than 98% of all the General Machines ever built are known to be still in service!*

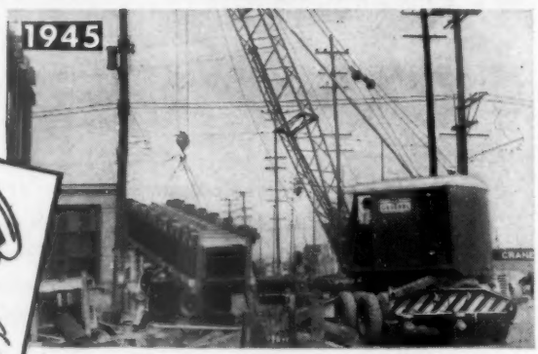
General Excavators and Supercranes at every corner of the map are proving their indestructible stamina—on thousands of materials handling and digging jobs, military and civilian.

Virtually every General machine since the first built (and incidentally we can send you a very interesting performance history on that one!) is plugging away dependably today

When Peace returns, bringing its great wave of new construction, Generals' dependability and all-around performance will be ready to help you raise your profit sights.

*Official records are incomplete on the other 2%, since many of them have passed from the hands of their original owners without General's knowledge.





WATCH FOR THE NEW GENERAL TYPE 10 ON RUBBER

The Revolutionary, All-Job "Machine of Tomorrow"

THE **OSGOOD** COMPANY
SHOVELS, DRAGLINES
CRANES
CRAWLER & WHEEL MOUNTS
DIESEL, OIL, GAS, ELECTRIC

Associated with The Osgood Company

GENERAL EXCAVATOR CO.
CRANES-SHOVELS GENERAL OSGOOD MARION OHIO U.S.A.
MARION, OHIO

GENERAL
CRANES, DRAGLINES
AND SHOVELS
DIESEL, GAS, ELECTRIC

SHIPPED INTACT
Quickly Installed

. . . CP "Package Type" Compressor

SHIPPED intact, all ready for external connections, CP Type Y Compressor is easily and quickly installed. It is exceptionally compact, requiring only minimum floor space. Large area Simplate valves, multi-step capacity regulation, effective intercooling, precision bearings and force-feed lubrication are responsible for its low power consumption and low maintenance costs. CP Type Y compressors with built-in or direct coupled motors or with V-belt drive are available in capacities of 300 to 900 c.f.m. at 80 to 125 pounds pressure; other sizes available for higher and lower pressures. Write for Bulletin 766.

There is a CP Compressor, stationary or portable, for every air requirement from 25 to 10,000 c.f.m. for pressures up to 5,000 pounds.

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(Hicycle...Universal)
ROCK DRILLS

CHICAGO PNEUMATIC
TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

★★★★★★★★
AIR COMPRESSORS
VACUUM PUMPS
DIESEL ENGINES
AVIATION ACCESSORIES

KOEHRING 205
NEW HALF-YARD CLAMSHELL CRANE
Get ready now for cost-cutting post-war crane operations with the new Koehring 205. Independent travel, swing, hoist and boom action, a feature reserved for big machines until now ...PLUS fast line speeds...PLUS smooth-acting large diameter clutches and brakes. Capacity approximately 7 tons. Rud-O-Matic tagline. Standard machine has 30 ft. boom, 16 in. shoes.
KOEHRING COMPANY
Milwaukee 10, Wisconsin
Orders Accepted NOW for Post-War Delivery . . . .
KOEHRING HEAVY DUTY
ARMY E NAVY
HEAVY-DUTY CONSTRUCTION EQUIPMENT

The smooth, effortless control of the LIMA Type 1201 is made possible through air-operated clutches. This all-important feature assures more economical operation and greater output thru less operator fatigue. A further advantage effective thru air-control is, simplified clutch adjustment. Only one adjustment necessary and when made, will retain the adjustment over a period of several months. A LIMA Type 1201 with air-control means more productive time on the job.

Regardless of how carefully a job is figured, how skillfully it is laid out, profitable results depend on the selection of the right type of equipment and its advantages to make big output possible. The LIMA Type 1201 shown in the illustration is a 3 or 3½ yard shovel (depending on length of boom and handle) or a 65 ton crane. It is in high favor with quarry operators, open-pit miners and contractors who demand top-notch performance from the equipment they buy. Look to LIMA for the shovel, crane or dragline of the right capacity for the job you are now planning.

LIMA LOCOMOTIVE WORKS, INCORPORATED
Shovel and Crane Division, Lima, Ohio, U. S. A.
NEW YORK, N. Y. PHILADELPHIA, PA. NEWARK, N. J. MEMPHIS, TENN.
ST. LOUIS, MO. DALLAS, TEXAS PORTLAND, ORE. SEATTLE, WASH.
MINNEAPOLIS, MINN. SPOKANE, WASH. SAN FRANCISCO, CALIF.
MONTREAL, Quebec, Can. LOS ANGELES, CALIF. VANCOUVER, B. C.

The LIMA Type 1201 can hoist, swing, travel or boom up or down at the same time. This advantage enables the user to do a wider variety of work without the loss of time due to changing from one motion to another. This is an advantage you will appreciate when working in close quarters or where frequent moves are necessary. Independent clutches are especially desirable when working machine as a crane.

The greatest destroyer of heavy machinery is friction. This profit taking hazard is overcome in the LIMA Type 1201 by the use of anti-friction bearings at every vital bearing point. LIMA does not stop at putting these wear resisting bearings only where high speed shafts revolve, but in the clutches, drums, cone rollers and other points where friction is commonly found. It costs less in the long run to operate a LIMA.

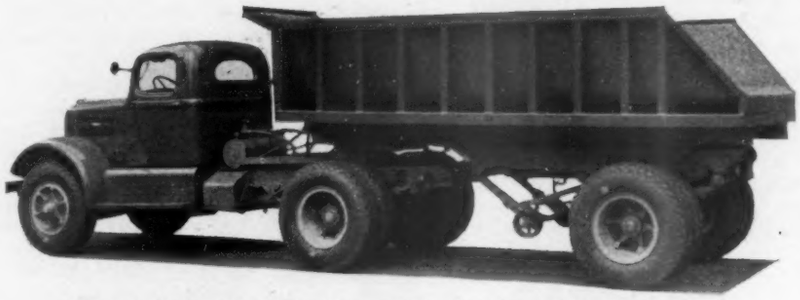
LIMA

Capacities CRANES 13 TONS TO 100 TONS
SHOVELS ¾ YD. TO 5 YDS. DRAGLINES - VARIABLE

WELLMAN
Williams BUCKETS
Longer Service...
Less Maintenance

Welded construction makes the difference! Multiple Rope, Power Arm and Power Wheel and Dragline buckets, ⅜ to 16½ yd. capacities.
Send for Bulletin

THE WELLMAN ENGINEERING COMPANY
7014 Central Avenue • Cleveland 4, Ohio
Sales and Service Agencies in Principal Cities



Model 5SF Semi-Trailer with 10 Cu. Yd. Rock Body

SEMI-TRAILER DUMP UNITS

WITH ROCK TYPE OPEN END OR STANDARD TAIL-GATE TYPE BODIES FOR ALL TYPES OF BULK MATERIAL HAULING ARE AVAILABLE FOR SALE TO APPROVED USERS. COMPLETE INFORMATION FURNISHED ON REQUEST.

TRUCK ENGINEERING CORPORATION
CLEVELAND 2, OHIO

CUMMER ASPHALT PLANTS

EIGHT SIZES 60 TO 1000 TONS PER DAY

Combination Two-Fire Dryers for Making Hot or Cold Mix
No Changes Required — No Loss of Time

TWO-FIRE AND INTERNAL FIRE DRYERS—
20 to 100 tons per hour

PUG MILL MIXERS—8 Sizes—500 to 8,000 lbs. per batch

ELECTRIC TIMERS—to meet all State Highway Specifications

Recently Completed Largest Asphalt Plant in World —
Borough of Manhattan, New York City

Established 1892 *Over 50 Years Experience*

THE F. D. CUMMER & SON COMPANY
EAST 17th AND EUCLID AVENUE
CLEVELAND, OHIO

HANSON

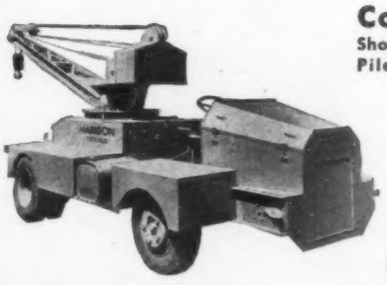
TRUCK SHOVELS...

The records set up with Hansons on tough road building and construction jobs add up to one of the big reasons why so many successful engineers and contractors want Hanson equipment for their post war work. The speed, low operating costs and long life of Hanson Truck-Mounted Shovels and Cranes give you that "edge" which means so much in licking tough competition.

With Hansons you know you're "all set" for the big jobs ahead. Send for full details today.

CAPACITIES
3/8 and 1/2 Cu. Yd. Shovels
4 and 6 Tons Capacity Cranes

Convertible to:
Shovel—Crane—Dragline—
Pile Driver—Clamshell—
Trench Hoe



YARD AND DOCK CRANES

Mobile, versatile; one man operation; 2 to 30 miles per hour; 2 to 4 ton lift and carry; full 360 degree swing. A thousand uses in fast, economical material handling. Write for descriptive literature.

THE HANSON CLUTCH & MACHINERY CO.
TIFFIN, OHIO

HENDRIX
Lightweight DRAGLINE BUCKETS

DO THE JOB
...Easier
...Faster
...Cheaper

3/8 to 30 CUBIC YARDS

- ★ 20 to 40 per cent lighter than other buckets, type for type.
- ★ All welded construction for greater strength and durability.
- ★ Manganese Steel chains, fittings, and reversible tooth points.
- ★ Full Pay Load every trip, even in wet diggings.
- ★ Perfect Balance; handles easier, fills faster, dumps quicker.
- ★ Three Types—light, medium, and heavy duty.

WRITE OR ASK YOUR DEALER FOR DESCRIPTIVE LITERATURE

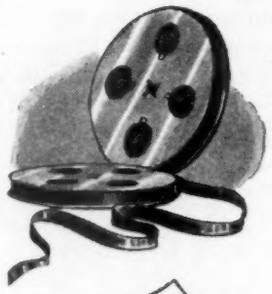
DESOTO FOUNDRY, INC. • MANSFIELD, LA.

TO COMPANY PRESIDENTS:

Here's Another BIG CHANCE FOR YOU to "Pass the Ammunition!"

Today—thanks largely to you and other industrial executives—22,000,000 civilian workers are speeding victory and achieving postwar security through the Payroll Savings Plan. Over 60% of the 6th War Loan subscriptions came from this source—and, between drives, this forward-looking plan has been responsible for 3 out of 4 War Bond sales!

Good as this record is, the Payroll Savings Plan can be still more effective. Believing this can best be accomplished by giving Bond buyers a definite idea of the many benefits accruing to them, the War Finance Division has prepared a variety of active aids for employee education.

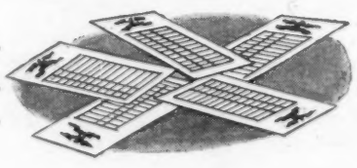


This new "ammunition" includes:

a—An entertaining, swift-paced moving picture, graphically showing the importance of buying—and holding—War Bonds.

b—An interesting, easy-to-read booklet, explaining how War Bonds may be accumulated to provide education for children, homes, retirement incomes, etc.

c—Attractive, handy War Bond envelopes, enabling Bond holders to note each separate purchase—and the specific purpose for which each Bond or group of Bonds was bought.



Passing this particular ammunition requires that you reappraise your own company's Payroll Savings Plan. Have your own War Bond Chairman contact the local War Finance Committee—today! They will welcome the chance to discuss this new program with you.

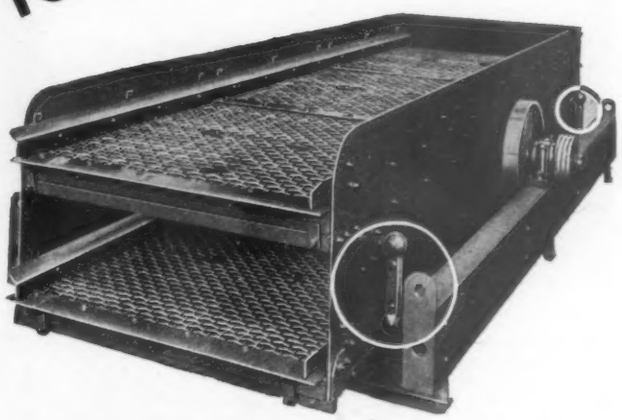
The Treasury Department acknowledges with appreciation the publication of this message by

PIT and QUARRY

★ *This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council* ★

From Rip Rap

TO FINE LIMESTONE



there's a SECO Screen to give you MORE TONS PER HOUR

● The big reason why operators are getting increased tonnages with Seco vibrating screens is Seco's sharper whip. This drives materials more thoroughly and more quickly through the meshes, reduces tendency to blind and improves conveying action.

Seco's patented method of mounting the live body to the base frame gives a positive control of the gyrating action. This is the advanced engineering that produces Seco's sharper whip —and distributes it evenly over every inch of screen surface—regardless of the load condition.

For more tons per hour on your screening job consult Seco's screening experts. Write Dept. A today!

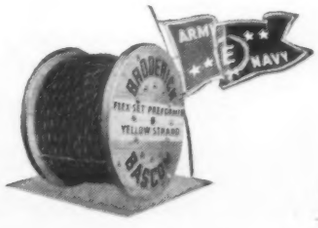
SECO SCREEN EQUIPMENT CO., INC.
9 Lafayette Avenue, Buffalo 13, N. Y.

No time for absentee wire rope

In a mechanized war, fighting equipment *dares not* be absent; industrial equipment *should not.* Even though your wire rope is carrying many an extra burden, proper care will prolong its life. So . . . make sure that inexperienced operators understand its *correct* use. Gear up rope inspection. Avoid damaged sheaves and drums.

The prime way to get top rope performance is to *start* with the stamina of Preformed Yellow Strand. Install it on power shovels for hoist and swing lines, and as crowd and rack ropes . . . on dragline machines, too, for hoist and drag lines . . . and on clam shells for holding and closing lines. Preformed Yellow Strand is a quarryman's mainstay that *will stay* on the job.

Broderick & Bascom Rope Co., St. Louis
Branches: New York, Chicago, Houston, Portland, Seattle
Factories: St. Louis, Seattle, Peoria



YELLOW STRAND

PREFORMED WIRE ROPE

WHY FLINK *Lime Spreaders* MAKE YOU MORE MONEY

When fields are wet or crops are growing your lime spreader trucks can be used for other profitable jobs if they are equipped with Flink self-feeding spreaders. The Flink fits all dump trucks as a replacement end gate. Truck can still be used for all trucking and hauling jobs, for road work, for sand and cinder spreading. See below.

You can use your Flink-equipped trucks 365 days in the year to make money. Spread more lime in less time when lime spreading can be done. Use your trucks to do 101 other jobs when you can't spread lime. The expense of having a one purpose lime spreader truck stand idle — which experienced operators estimate at $25 per day—is entirely avoided by men who use Flink self-feeding spreaders.

Strictly a one man outfit. The driver of the truck operates the spreader from the cab.

Spreads wet or dry materials, thick or thin as desired, up to 1" in size, 15' to 28' wide, depending on type of ground and nature of material.

Fits all standard 5½' and 6' dump bodies as a replacement end gate does not interfere with dumping of loads in usual way, as spreader can be removed in 5 minutes.

Write for complete literature.

The FLINK COMPANY

509 VERMILLION STREATOR, ILLINOIS

Concrete

FOR LOW ANNUAL COST

Concrete contractors and cement products men are saving money for their customers because concrete used for industrial, farm or home improvements is low annual cost construction, the true measure of building economy.

PORTLAND CEMENT ASSOCIATION

Dept. A3-58, 33 West Grand Ave.
Chicago 10, Illinois

NOW... 8 SCREENS IN USE

● Satisfactory service of the first 4 screens resulted in the installation of 4 additional screens—making 8 in use at this plant washing phosphate rock. If your requirements call for sizing, washing, dewatering or recovering all kinds of wet or dry materials, let Link-Belt Screens do the job. Made in a number of standard sizes. Write for Books Nos. 1762 and 1977.

LINK-BELT COMPANY, 2045 W. Hunting Park Ave., Philadelphia 40; 300 W. Pershing Road, Chicago 9. Offices in Principal Cities.

9836

LINK-BELT Vibrating SCREENS

NEW LEADER Truck Body Type

LIME SPREADERS

Can Now Be Purchased Without Triple AAA Certificates or Priority

THE above picture shows a rear view of the new model NEW LEADER marl and lime spreader. This spreader is equipped with an extra wide conveyor and two distributor discs and is strictly a one-man spreader. You will be able to haul wet lime or marl and, due to the large opening in the back end of the spreader, material will always feed onto the distributor disc evenly.

This spreader has many outstanding features. Both gear boxes driving the distributor discs are equipped with cut steel gears and ball-bearings running in a dust-proof and oil-tight gear case. The large gear box driving the wide chain conveyor is equipped with a steel ring gear and pinion and a thrust bearing also running in a dust-proof and oil-tight gear case. Bearing hangers are placed underneath the distributor discs; these are also equipped with ball bearings. This helps to carry the weight of the distributor discs and the load, the weight not being suspended from the gears in the small gear box. With this arrangement you are assured longer lived gears. The framework of the spreader is of hardwood.

These spreaders can now be purchased without priority or certificates of any kind. Write us for any additional information, also prices.

We now have territory available for dealers—write us for details.

HIGHWAY EQUIPMENT COMPANY, INC.

Manufacturers of the World's Most Complete Line of Spreaders, Including Lime Spreaders, Sand and Cinder Spreaders, Chip Rock, Clay and Dirt Spreaders.

CEDAR RAPIDS, IOWA, U. S. A. Phone 32017-32018

GET INTO ACTION FASTER

WITH THE DAVEY AUTO-AIR

Whether it's breaking up a section of concrete, emergency welding, or doing more extensive construction work . . . this truck, equipped with the Davey-Auto-Air-Welding combination, assures fast transportation of crew, tools and materials . . . provides compressed air . . . furnishes electricity for welding . . . and all power is supplied by the truck's engine.

You can save manpower, time, space, maintenance, and original cost by converting one or more of your trucks this way. Select one of these three units—the Auto-Air Compressor; the Compressor and Welder; or the Compressor, Welder, and Lighting Generator Combination . . . have it mounted locally on your truck with the Davey Heavy-Duty Truck Power Take-Off installed in the drive-shaft of the truck.

Available in 60, 105, 160, 210 and 315 cu. ft. capacities Auto-Air and 200 or 300 amp. welding generators.

Contractors Are Making the Davey Pneumatic Saw Standard Equipment

For cribbing, shoring, piling, bulkheading operations—construction of bridges, dams, mines, roads, wharfs—felling and bucking trees.

Under or above water operations ★ straight-edge cuts ★ clamping device which supports weight of saw ★ performance in any weather ★ rugged construction for speed and long service ★ standard cross-cut teeth are easily sharpened.

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reduces **"ONE-MAN"** size stone to 1¼", 1¾" or agricultural size in **ONE OPERATION**

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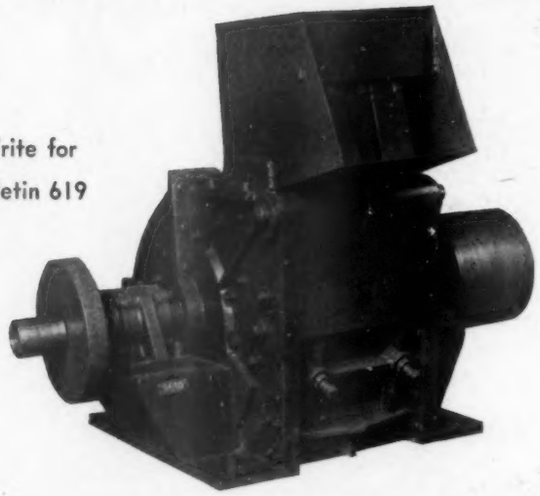

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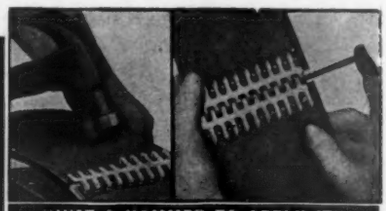

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World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-60 gives complete details.

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BELT FASTENERS AND RIP PLATES

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-magnetic and abrasion resisting alloys.

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- SAND
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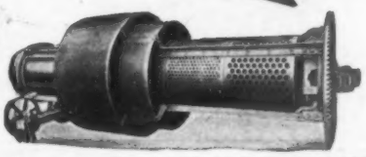

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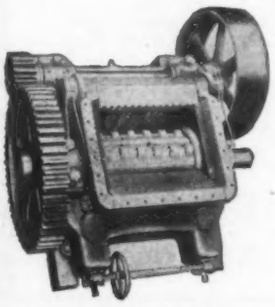

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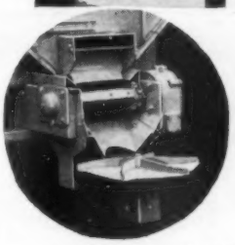

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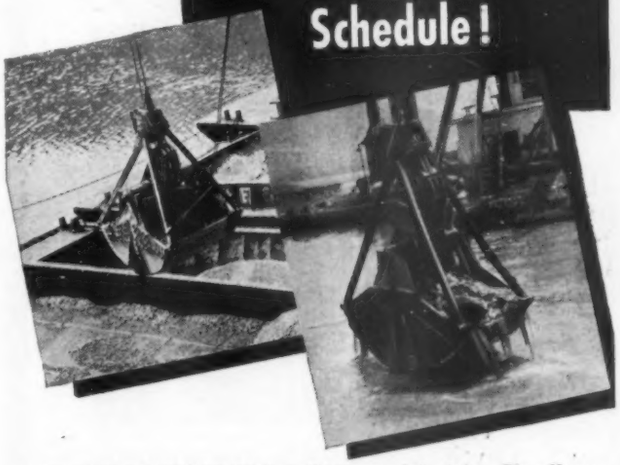

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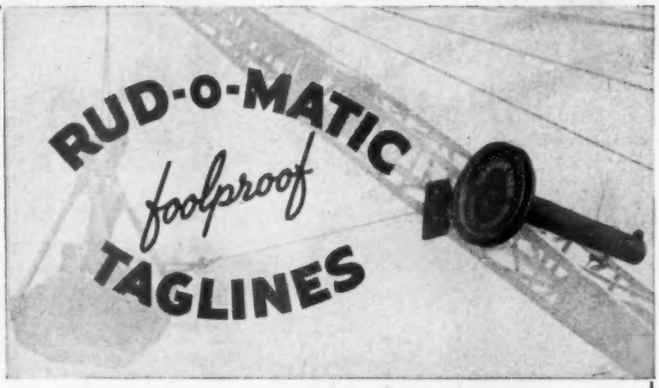

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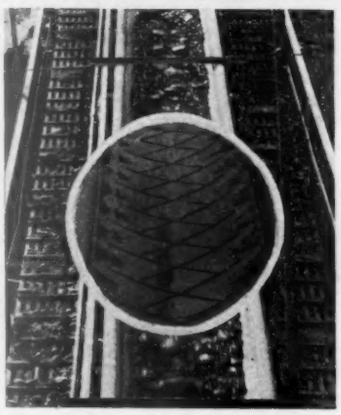

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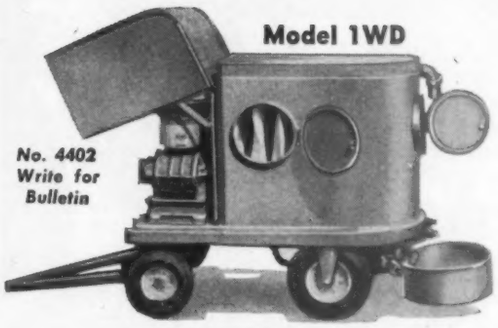

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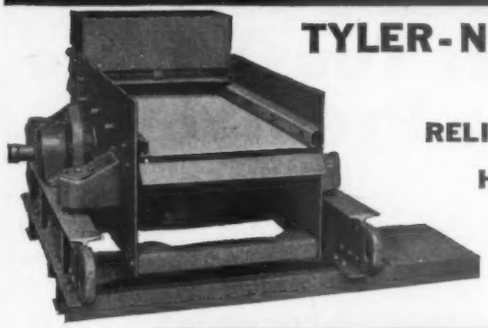

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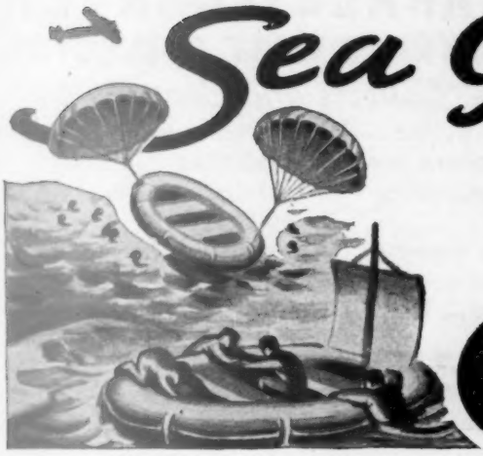

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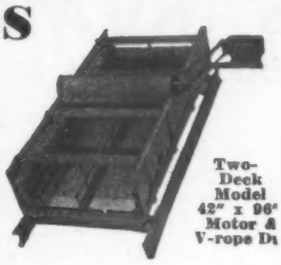

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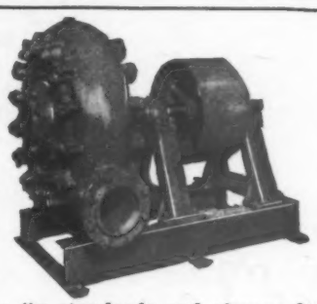

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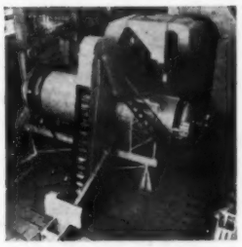

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1—940 CFM Ingersoll Rand Imperial Type 10 2 stage steam driven air compressor, size 19x12x12...$975.00
1—No. 6 McCully Superior Gyratory Crusher, 13″ machine, right hand drive $650.00
1—No. 6 McCully Standard Gyratory Crusher, 13″ machine straight drive $650.00
1—No. 3 McCully Standard Gyratory Crusher, 6″ machine, left hand drive $500.00
Some new spare parts for Crushers as shells, spiders, aprons and shafts.
All machines loaded f.o.b. cars
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13490 S. Brainard Ave., Chicago 33, Ill.
"ANYTHING containing IRON or STEEL"

FOR SALE: ⅞″, 1″, 1⅛″, 1¼″, and 1½″ PLOW and IMPROVED Plow Steel Wire rope, HEMP and Wire centers, NEW and slightly used, 6 x 7 and 19 construction; for DRAG Lines, Dredging, Guys, Hoisting, ETC.; ATTRACTIVE PRICES; 1000 K.W. Motor Generator SET; 900 and 650 CFM DIESEL AIR Compressor sets; 180 and 110 H.P. Diesel Engines, BELTED; 500 H.P. Single Drum Electric Hoist, complete.
Located in EAST AND MIDDLE WEST.
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FOR SALE OR DEVELOPMENT

An enormous deposit of the most efficient Fullers Earth in Texas. Open pit mining, on railroad and about 100 miles from Houston, the heart of the mineral oil refining industry of the world. Wonderful possibilities.

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30 H. P. 2 Drum Sauerman Hoist with Hercules Gas Engine
4 cu. yd. Hayward Class G, Sheave Reeved, Clamshell bucket
2½ cu. yd. Hayward Class G, Sheave Reeved type, Clamshell bucket
5 Ton 3 wheel Good Roads roller with Plymouth gas engine
2 Ton Caterpillar tractor with rubber pads
10″x20″ Allis-Chalmers Blake type jaw crusher
9″x16″ Cedar Rapids Jaw Crushers
8″x24″ Universal Jaw Crusher, portable steel wheels, bucket elevator complete
3′x8′ Simplicity 3 deck Vibrating Screen
8 ft. Austin Leaning wheel grader
103 Austin Gyrating Crusher
⅜ cu. yd. Blaw Knox Clamshell buckets
½ cu. yd Owen Clamshell buckets
¾ cu. yd. Owen Clamshell buckets
¼ cu. yd. Erie Clamshell buckets
⅞ cu. yd. Blaw Knox Clamshell buckets
1 cu. yd. Owen Clamshell buckets
1 cu. yd. Erie Clamshell buckets
1 cu. yd. Williams Clamshell buckets

YATES MACHINE WORKS
115 Main Street
Rochester, Michigan

FOR SALE

One (1) 3 by 6-3 deck Deister vibrating screen complete with electric motor drive and various screen cloths. Price $350.00.

Ohio Asphaltic Limestone Co.
New Vienna, Ohio

24x36 CRUSHER

24 x 36 Telsmith roller bearing jaw crusher, 1942 model, with extra set jaws.
100 h.p. 3ph 60c 220/440v Westinghouse motor and V-belt drive.

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EQUIPMENT FOR SALE

3—Duplicate **VULCAN** 21 ton, 36" Ga. steam saddle tank locomotives, Cy. 11"x16"—Nat'l Board boilers. blt. 1923

1—45 ton **BALDWIN** 2-6-2 Prairie type, std. ga. loco. & tender.

1—56 ton **BALDWIN** 0-6-0 std. ga. switcher type with separate tender. 19"x24" cy.

10—36" ga. **WESTERN** 5 yd. dump cars.

10—Std. ga. **WESTERN** 12 yard dump cars, all steel, hand dumps.

1—**BROWNING** No. 3 steam loco. crane, 30 ton capacity, 60' boom.

2—Model 25A **KALAMAZOO** motor section cars, 4 cy. gasoline motor.

3—Model 119-L **BUDA** motor section cars, Buda air cooled motor.

1—**BLAW-KNOX** 1½ yd. clam shell.

Send us your inquiries for rebuilt equipment.

SOUTHERN IRON & EQUIPMENT CO.
Plant & Gen. Offices
Atlanta 2, Ga.

FREIGHT CAR PRICES REDUCED

Now only half of recent peak prices
$500.00 to $4250.00
Which of these cars could YOU use?

40 Hopper, Triple, 50-Ton
85, Hopper, Side-Discharge, 50-Ton
80, Refrigerator, 40-Ft., 40-Ton
16, Refrigerator, 36-Ft., 30-Ton
8, Ballast, Composite, 50-Ton
29, Box, 36-Ft., 40-Ton
25, Dump, Western Automatic, 30-Yd., 50-Ton; with Aprons
9, Dump, Koppel Automatic, 30-Yd., 50-Ton; with Aprons
10, Dump, Major, Automatic, 30-Yd., 50-Ton; Lift doors
10, Dump, Western, Automatic, 30-Yd., 50-Ton; Lift doors
1, Dump, Koppel, Automatic, 20-Yd., 40-Ton, Drop-side Door
4, Dump, Western, 20-Yd., 40 & 50-Ton
18, Dump, K & J Automatic, 16-Yd., 40-Ton
20, Flat, 40-Ft., 40 & 50-Ton
35, Gondola, Composite, 36-Ft., 40 & 50-Ton
6, Gondola, Steel, 50-Ton, High-Side
30, Tank, 8000-Gallon, 40 & 50-Ton
10, Tank, 10,000-Gallon, 50-Ton

All cars are priced to sell!

IRON & STEEL PRODUCTS, INC.
40 years' experience
13490 S. Brainard Ave., Chicago 33, Illinois
"ANYTHING containing IRON or STEEL"

LOCOMOTIVES SHOVELS CRANES CARS

1—42½ ton Porter 0-4-0 saddle tank locomotive, standard gauge, A.S.M.E. boiler, entire new firebox, rebuilt.

1—26 ton American 0-4-0 saddle tank locomotive, standard gauge, A.S.M.E. boiler, thoroughly overhauled.

1—72½ ton Baldwin 0-6-0 separate tender switcher, full time I.I.C. papers, overhauled.

1—Whitcomb diesel locomotive, 36" gauge, with Caterpillar V-8 engine, air brakes, electric lights. This locomotive built in 1936 and has now been put in first class serviceable condition with new wheels, chains, sprockets, reversing gear, and bronze clutch plates. Weight is 20 tons in full working order.

5—Western 30 yard two way air operated side dump cars, standard gauge, **DROP DOOR TYPE**, first class condition.

BIRMINGHAM RAIL & LOCOMOTIVE COMPANY
Birmingham 1, Alabama

FOR SALE LATE MODELS GOOD CONDITION

3—D8 caterpillar tractors with 15 and 23 yard scrapers 1940 and 1941 models. Guaranteed condition.
2—TD18 tractors 1941 models guaranteed condition with double drum power control unit and S90 scraper.
2—Allis Chalmers HD14 tractors 1942 models with double drum power control unit, pusher block, and 12 yard carryall scraper.
1—Marion 1¾ yard combination diesel electric, good condition. 1939 model.
1—new 30 ton chain fall priced right for quick sale.
1—10 ton chain fall good condition.
1—model 602 Lima combination shovel, dragline 1937 model diesel guaranteed.
2—Allis Chalmers models HD10 tractors with Baker hydraulic bulldozer, 1943 and 1942 models, good condition.
1—Koehring diesel shovel, model 801, 2 yard with dragline boom; A-1 condition; guaranteed.
2—TD6 international tractors, 1941 and 1943 models, one with bull grader; excellent condition.
1—International T20 crawler tractor, gas power; fair condition.
1—Austin Western model 77 motor patrol; good condition.
1—100B Bucyrus Erie 4-yard electric shovel.
1—120B Bucyrus Erie 4-yard electric shovel.
1—Model 1030B bucyrus Erie dragline overhauled, excellent condition, ¾ yard machine.
5—Model DB32 and FB32 Athey 2-way dump wagons; 10 cubic yard, and 16 cubic yard. Good condition.
1—TD18 international tractor with Bucyrus Erie bullgrader, 1941 model, very good condition; located near Duluth. Also International, Euclids, Chevrelet and Ford dump trucks, 3 to 21 yard capacity. Very late models. Good condition.

"For good buys, try us." Phone, write, or wire:

GARSON IRON AND STEEL COMPANY
515 Lyceum Building, Duluth 2, Minnesota **Phone Melrose 222**

FOR SALE

1—100 HP 2200 volts; 3 phase; 680 RPM; 60 cycle Allis Chalmers $375.00.
1—25 HP 220 volts; 3 phase; 1200 RPM; Watson $100.00
1—10 HP 220 or 440 volts; 60 cycle; 600 RPM G. E., Vertical mounting can be arranged for horizontal at $90.00.
1—10 HP 220 volt; 3 phase; 1200 RPM Westinghouse at $90.00.
1—16 KW 220 volts G. E. Generator $90.00.
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1—Dings Magnetic Pulley 18" diameter for 16" belt; 220 volts; DC at $100.00.
1—15 HP 220 volts; 3 phase slip Ring motor; 60 cycle; 900/1800 RPM with face plate speed controller at $125.00.
1—40 HP 1200 RPM Mt. Slip ring; 3 phase 60 cycle with grids and Drum controller $250.00.

The following are 25-cycle; 3 phase:—
1—225 HP 500 RPM G. E. 170 Slip Ring $450.00.
1—112 HP 720 RPM G. E. 170 Slip Ring $375.00.
3—25 HP 720 RPM G. E. I. Form K $150.00.
1—50 HP 720 RPM G. E. 1 Form K $350.00.
3—15 KVA 13200/440 volt 1 phase 25 cycle G.E. oil type transformers at $75.00 each.
1—10 KVA 13200/110 volt 1 phase 25 cycle G.E. transformer $75.00.
1—10 KVA 440/110/220 volt 25 cycle 1 phase G.E. transformers $75.00.

All electrically good and overhauled. Ready to run **not as is.**

For any above electrical equipment, please write, wire, or phone:

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FOR SALE

2—4-ton Vulcan Gasoline Locomotives, 45" gauge; fair condition.

1—BUFFALO Hoist Single Friction Drum, 50 H-P cap., electric, without motor; good condition.

3500 ft.—45 lb. and 60 lb. R. R. Rail.

22—Quarry Rock Cars (45" gauge) ten cars good condition; twelve cars can be repaired).

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Chazy, New York

SPECIAL BARGAINS OVERHAULED BY OUR MEN

P&H Model 600 crawler gas crane and dragline, 50' boom, 1 yard cap.
20B Bucyrus crawler gas crane, 40' boom, ¾ yard cap.
3—Barber-Greene Model 42 crawler gas disc type bucket loaders.
A-W 3 ton Fordson gas roller.
110 HP Kewanee fire box heating boiler.

Priced to sell quickly.

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14057 Schaefer Highway
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100 TONS — NEW

¼" and ½"

Armor PLATE

Send for List

E. COHN & SONS

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75—Used Steel-Brooks Load Lugger Buckets; 1½ yds. capacity. V shaped bottoms —rounded, with ring hooks.

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FOR SALE

Model B20, size ¾ yard Bucyrus Diesel Dragline, 45' boom, 24" crawlers. Very good condition.

Llewellyn Machinery Corporation
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36 INCH CONVEYOR IDLERS

750 Chain Belt. No. 32, 5 In. Dia.
Anti-Friction $12.51 Each.
Troughing Idlers.
375 Chain Belt No. S1, 5 in. Dia.
Return Rolls FOB Shipping Point $6.39 Each.

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4 OFFICES and PLANTS

CHICAGO — NEW YORK
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EQUIPMENT CORPORATION of AMERICA

WE SERVE 4 WAYS

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COMPRESSORS

368 CFM Type NSB Chicago Pneumatic horiz., complete with 60 H.P. G.E. 3/60/440 motor

515 CFM Type XB 2 Ingersoll Rand, complete with 100 H.P. 3/60/2200 V motor

518 CFM Type XCB Ingersoll Rand, with 100 H.P. slip ring motor

526 CFM Ingersoll Rand, Style "J"

940 CFM Ingersoll Rand, 10 horiz. 2-st. steam-driven, with receiver

CRUSHERS

No. 3 and No. 6 McCully Gyratory

LOCOMOTIVES

1—6 ton Milwaukee, 36" ga., gasoline

1—7 ton Milwaukee, 36" ga., gasoline

1—9 ton Whitcomb, 36" ga., gasoline

1—18 ton Plymouth, std. ga., gasoline

1—20 ton Plymouth, std. ga., gasoline

SHOVELS — CRANES & DRAGLINES

No. 2 Koehring 3-way comb. crane, dragline & shovel

LOCOMOTIVE CRANES

15 ton Brownhoist, 8 wheel, steam, 60' boom

25 ton Browning, 8 wheel, steam, 50' boom

30-40 ton Brownhoist, 8 wheel, steam, 70' boom

TANK & TOWER

60,000 gallon Water Tank on 89'9" tower, with 10" riser pipe.

TANKS, Storage

All capacities — Expertly rebuilt!

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7, 7 cu. yd. Allis Chalmers Speed-Ace (Write for illustrated bulletin)

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"Anything containing IRON or STEEL"

2—No. 200 Rex double pumpcretes, excellent condition, with Waukesha 6-cylinder gas engines complete with pugmill remixers and 1,200 ft. 8" pipe.

2—30B Diesel driven caterpillar cranes with dragline and shovel attachments.

1—No. 480 Marion steam crawler crane without attachments.

1—Complete I-R No. 54 drill steel sharpener with one 27F oil furnace, one JF furnace, one shank and bit punch, cut-off machine, etc., etc., in guaranteed condition.

1—5 Cubic yard Owen clamshell bucket—weight 27,000 lbs.

GREAT LAKES DREDGE & DOCK CO.
122 So. Michigan Ave., Chicago 3, Ill.

RAILS NEW AND RELAYING
TRACK ACCESSORIES
from 5 Warehouses
L. B. FOSTER COMPANY
PITTSBURGH • CHICAGO • NEW YORK

LOCOMOTIVES

1—20 ton Plymouth standard gauge gasoline

1—20 ton Whitcomb diesel 36" gauge

1—57 ton Baldwin type 0-6-0 standard gauge saddle tank

2—67 ton American type 0-6-0 standard gauge separate tenders

2—78 ton Baldwin type 0-6-0 standard gauge side tanks

B. M. WEISS COMPANY
Girard Trust Company Building
Philadelphia 2, Pennsylvania

STANHOPE OFFERS!

AIR COMPRESSORS

BELTED: 355, 528, 676, 1000, 1300 & 1570 Ft.
ELECTRIC: 473, 676, 807, 1302, 1722 & 2850 Ft.
DIESEL: 105, 315, 420, 603, 807 & 1000 Ft.
PORTABLE GAS: 110, 160, 220, 310, 540 & 1300 Ft.
STEAM: 49, 310, 528, 1300 & 2200 Ft.

GRAPPLES & BUCKETS

50 Skips and Battleship Type, 2 to 6 Yds.
5 Owen & Bucyrus Rock Grabs.
CLAMSHELL: ½, ¾, 1, 1½ & 2 Yds.
ORANGE PEEL: ⅝, 1, 1½, 2 & 3 Yds.
DRAGLINE: ½, ¾, 1, 1½ & 2 Yds. Cap.

CRANES & DRAGLINES

5 Ton BROWNHOIST, 30 Ft. Boom Gas.
12 Ton NORTHWEST 50 Ft. Boom Gas.
12 Ton KOEHRING 45 Ft. Boom Gas.
18 Ton Speedcrane, Gas, 50 Ft. Boom.
25 Ton BROWNING & 30 Ton AMERICAN Locomotive.
25 Ton LINK BELT K-48 Electric, 70 Ft. Boom.
2 Yd. Monighan Electric 60 ft. Boom Dragline.
3 Yd. Monighan Diesel Dragline.
5 Yd. Monighan Diesel Dragline.

CATERPILLAR SHOVELS

½ Yd. P. & H. Gas & ¾ Yd. Insley Gas.
¾ Yd. KOEHRING Gasoline.
¾ Yd., 1¼ Yd., 2 Yd., 4 Yd. & 8 Yd. MARION Electrics.
1 Yd. NORTHWEST Gas & 7/8B2 Steamer.
1½ Yd. BUCYRUS 41B Steamer.
1½ Yd. KOEHRING 601—Gas.
4 Yd. 120B Bucyrus Elec.

DUMP CARS

46—KOPPEL, 1½ Yd., 24 & 30 In. Ga., V Shaped.
15—2 Yd., 3 Yd., 4 Yd. 36 In. Ga.
20—8d. Ga. 12 Yd., 16 Yd., 20 Yd. & 30 Yd. Cap.

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6x8 Continuous Pebble Mill.
5x5 Batch Mill.
5'x22" HARDINGE CONICAL Dry Ball Mill.
6'x22" HARDINGE CONICAL Pebble Mill.
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8'x22" HARDINGE CONICAL Ball or Pebble Mill.
4x16, 5x18, 5x22, & 6x22 Tube Mills.
3½x8 & 5x7 Air Swept Tube Mills.
2x4½, 5x12 and 6x12 ROD MILLS.
4x16 Smidth Tube Mill Silex.
5½x20 Smidth Tube Mill Mang. Lining.
5½x18 F & M Tube Mill Silex.

PULVERIZERS

No. 1 Sturtevant Ring Roll.
RAYMOND Auto. Pulverizer No. 0000, 0 & 3.
RAYMOND Imp Mills No. 4, 32 & 55.
GRUENDLER XXB Mill & Jay Bee No. 3 & 4.
RAYMOND 4 & 5 ROLL MILLS & 5 Ft. Chaser Mill.

SEPARATORS AND COLLECTORS

14 ft., 8 ft. and 12 ft. Separators

ROLL CRUSHERS

36x60 Fairmont Single Roll.
36x20 Diamond Double Roll.
24x24 & 36x16 & 36x20 Diamond Double Roll.

JAW CRUSHERS

10x8, 13x7½, 14x7, 15x9, 15x10, 16x9, 16x12, 16x10, 18x11, 20x8, 20x6, 20x10, 20x12, 20x11, 26x12, 30x15, 30x13, 36x30, 36x18, 36x14, 36x15, 36x9, 36x6, 38x18, 36x10, 36x24, 42x9, 48x36, 60x42, 84x66, 36x16, 9x36.
30x10 Gruendler Roller Bearing.

CONE & GYRATORY CRUSHERS

18 in., 24 in., 30 in., 36 in. and 48 in. Symons Disc.
21K & 18N Allis Chalmers.
4—10 T2 Traylor 4 Ft. Gyratory.
4—Nos. 5, 3 & 6 Austin Gyratory.
2—Traylor T-12 Bulldog Gyratory.
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17 Gates K—Nos. 3, 4, 5, 6, 7½, 8 & 9½.
10 Inch Austin Model 105.
6, 10 & 13 Inch Superior McCullys.
KENNEDY: Nos. 19, 25, 27, 39 & 49.
16" Traylor.
7 Ft., 5 Ft., 4 Ft., 3 Ft. and 2 Ft. Symons Cone.

MIXERS—PAVERS

5—1 yd. 2 yd. & 3 yd. Mixers.
3—Ransome & Rex 34E Dual Drum.
5—Koehring & Smith 27E Pavers.

HOISTING ENGINES

7 Gasoline 15, 40, 60 & 100 H.P.
17 Steam 7x10, 8¼x10 and 10x12.
8 Electric 20, 35, 50, 60, 100 & 150 H.P.

HAMMER MILLS

4 Jeffreys: 24x18-A, 36x24-B, 42x36-E & 42x48-B.
Williams No. 1 Jumbo Jr., & No. 6 Universal.
Nos. 4, 6 & 8 Williams Jumbo.
No. 36 Am. Ring Roll.
Greundler No. 6X.

ASPHALT EQUIPMENT

7—750 & 1000 Gal. Distributor Trucks.
3—1000 Lb. & 2000 Lb. Pug Mixers.
6—3, 5, & 10 Ton Asphalt Rollers.
5—½, 1, & 2 Ton Asphalt Plants.

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60 HP Fairbanks Morse.
140 HP Fairbanks Morse.
200 HP Atlas.
225 HP Chicago Pneumatic

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343 K.W. F.M. 3/60/480 v.
240 K.W. F.M. 3/60/2300 v.
300 K.W. Worthington 3/60/2400 v.
125 K.W. F.M. 250 v. D.C.
30 K.W. Buda 110 v.

RAYMOND MILL

5 Roll High Side.

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BELT: 1000 Ft. 60 In., 700 Ft. 42 In., 600 Ft. 36 In., 800 Ft. 30 In., 1642 Ft. 24 In., 517 Ft. 20 In., 297 Ft. 18 In., 1000 Ft. 14 In. & 16 In.
IDLERS: 36 In., 30 In., 24 In., 20 In., 18 In.
Head & Tail—Pulleys—Takeup for all sizes.
Steel Frames: 2,000 Ft. 24 In., 30 In. & 36 In. Sections.

ROTARY DRYERS AND KILNS

36 In. x 20 Ft., 3 Ft. x 30 Ft., 4 Ft. x 30 Ft., 54 In. x 30 Ft., 42 In. x 34 Ft., 5 Ft. x 30 Ft., 5 Ft. x 16 Ft., 5 Ft. x 60 Ft., 6 Ft. x 60 Ft., 6 Ft. x 70 Ft., 70 In. x 40 Ft., 5x30 & 8x84 Double Shell Dryers, 8x110, 7½x100, 8x125 & 10x20 Kilns.

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GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

LOCOMOTIVES

DIESEL: 7—4½, 8 and 15 Ton.
GASOLINE: 3 Ton, 5 Ton, 8 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 3 Ton, 8 Ton, 17 Ton & 40 Ton.

SCREENS

VIBRATING: 2x4, 3x6, 2x8, 3x8, 3x5, 4x5, 4x8, 4x10, 48x72. HUMMER, ROTEX, NIAGARA & ROBINS, LINK BELT & HURON.
REVOLVING: 3x12, 3x16, 3½x18, 3x24, 4x16, 4x20, 4x23, 4x24, 5x30, 5x20, 6x20.

STEEL STORAGE TANKS

35—4000, 5000, 6000, 8000, 10000, 15000 and 20000 gal. cap. Horizontal and Vertical.
6—2500, 5000 and 10000 bbl. Vertical.

ASPHALT TANKS

15—8000, 10000 and 20000 gal. cap. with heater coils.

RAILROAD CARS

20—8000 gal. cap. Tank Cars.
12—50 Ton Cap. Battleship Gondolas.
7—50 Ton Cap. Flat Cars.

SAUERMAN DRAG AND SLACKLINES

1— ¾ yd. Gas 1—1½ yd. Electric
1—1 yd. Electric 3—2 yd. 3 yd. & 4 yd. Electric

R. R. TRACK SCALE

125 Ton 56' x 10'6" Platform 4 Section.

WHIRLEY CRANES

5 Clyde 75 to 100 Ft. Boom.

DRILL SHARPENERS

5 I.R. 4K Shank Grinders.
6 Ingersoll-Rand 54, 40, 50 & 34's.
7 Sullivan Class A, & C.
8 Gardner-Denver 3A & No. 6DS.

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R. C. STANHOPE, INC.
(Cable Address: "STANEQUIP" New York)
Lincoln Bldg., 60 E. 42nd St., New York, N. Y.
Murray Hill 2-3075 or 2-3076

Austin Gyratory Crusher No. 107.

Buchanan Type B 12" x 36" Jaw Crusher.

Allis-Chalmers Double Roll Crusher, Garfield Type, size 54" x 20", with new manganese roll shells.

Allis-Chalmers Double Roll Crusher, Type XX, size 54" x 24", with new tire steel shells.

Lippman Scrubber Screen, 72" x 18', complete with G. E. 20 HP motor, 440 volt with starter.

Tyler Type 31 Tandem Hummer Screen, 8' x 5' surface with G. E. Type G2 Motor Generator Set.

AMERICAN ZINC COMPANY OF TENNESSEE
Paul Brown Bldg., St. Louis 1, Mo.

CRUSHERS

12 x 24 Webb City Jaw Crusher
No. 4 Gruendler Peerless Screenings Grinder
No. 13 American Ring Pulverizer
No. 2 Williams Little Giant Hammermill
No. 2 Gruendler Jaw Crusher
Size 24 Symons Disc Crusher

STURTEVANT BLOWERS

50" Slow Speed Mill Exhauster
70" Sawmill Fan
36" Fan

BEDFORD PLANERS

37" Planers—13' and 15' Beds

NEW MATERIALS

Bolts, screws, rivets, pipe.
Write for list.

INLAND EQUIPMENT CO.
P. O. Box 477 Nashville, Tennessee

PIPE New & Reconditioned
ALL SIZES for ALL PURPOSES
Cut and Threaded to Your Specifications
VALVES AND FITTINGS
UNITED PIPE & SUPPLY CO., NORRISTOWN, PA.

Davenport, Porter, Vulcan 17 to 19 ton steam 36" gauge S/T locomotives. (4), rebuilt, tested.
Milwaukee 8-ton gas locomotive, 36" ga., rebuilt.
Milwaukee 12-ton gas locomotive, std. ga., A-1.
Vulcan 18-ton steam S/T locomotive, 42" gauge.
Bucyrus 50B and 80B steam crawler shovels.
Page and Monighan Diesel draglines, 2 and 3-yd.
Marion 1¼-yd. electric shovel. 440 volts.
American steam railway ditcher-crane, 28' boom.
Bucyrus-Erie 1¼-yd. gas-air comb. shovel-drag-line.
Gyratory crushers, 12", 14," 27"; Newhouse 7".
American-Champion 24"x50" steel jaw crusher.
Sturtevant No. 2 rotary fine crusher.
Euclid 6-yd. bottom dump crawler wagons (8).
Fairbanks-Morse 210 HP Diesel engine.
Bucyrus 30' shovel boom only, for 50 B machine.
Boiler tubes, 236—1¾"x5', ferrules, (new).

H. Y. SMITH COMPANY
828 N. Broadway Milwaukee 2, Wisconsin

FOR SALE

Lidgerwood Hoist two drums each 27" wide, 30" diameter, 8" flange Westinghouse AC rheostatic controller and 440 V motor complete and good as new.

Hydraulic-Press Brick Co.
802 Board of Trade, Indianapolis Ind.

CRUSHERS
No. 5 and No. 6 Champion, jaw type, overhauled.
SHOVEL
½-yd., gas, ¾ swing, Insley type C, 17' boom, 12'6" dipper stick.
Also skimmer attachment. Rebuilt—very low price.
THE INDUSTRIAL EQUIPMENT CORPORATION
P. O. Box 1647, Pittsburgh 30, Pa.
Warehouse: Carnegie, Pa.

RIDE COMFORTABLY

Leather covered replacement seats for all type single seat vehicles.
Cushion 13x13x4 ..... $2.75
Easy Back Rests..... $3.00

GENERAL TRADERS
2675 Grand Avenue Chicago 12, Illinois

Jaw Crushers—4"x8" up to 18"x36".
Crushing Rolls—16"x10" up to 54"x24".
Gyratory Crushers—No. 3, No. 12.
Ring Roll Mills—No. 0, No. 1, and No. 2.
Swing Hammer Mills.
Rotary Fine Crushers—Nos. 0, 1, 1½ and 2.
Direct Heat Rotary Dryers—3½'x25', 4'x30', 5½'x40', 6'x50', 7'x50'.
Semi-indirect heat Dryers—70"x35'.
Cement Kilns—3' up to 8' diameter.
Hardinge, Marcy & Fuller-Lehigh Mills.
Raymond Mills—Nos. 00, 0, 1, 2 Roll.
Tube—Rod and Ball Mills—2' to 6' diameter.
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2 heavy, C. I. pulleys, 84" x 23".
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1—Acme jaw crusher, Ser. No. 1686, size 9x16".
1—No. 3 Champion jaw crusher, size 7½x13".
1—United Iron Works, "Blake-type" jaw crusher, size 9½x24".
1—No. 9 New Holland jaw crusher, size 6x9".
1—Sawyer Massey jaw crusher, size 9x18".
1—Allis Chalmers No. 5 gyratory crusher, Ser. No. 5331, opening 10x38".
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2—20 ton American steel guy derricks. 1—110' mast, 100' boom; 1—100' mast, 90' boom.
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85—Electric, ranging from 30 H.P. up to 125 H.P., consisting of triple-drum, double-drum and single-drum, with AC or DC motors, some with attached swingers. Following makes: American, Clyde, Lambert, Lidgerwood and National.
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1—10x8" Weiman-Jaeger No. P-4201, power 50 H.P. AC motor; capacity 2500 GPM @ 35' head.
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Steel storage bins—230 cu. ft. to 35000 cu. ft.
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1000 motors, from 1—500 HP, 230 volt DC and 220, 440 and 2300 volt, 3 phase 60 cyc.

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Traylor 4 ft. type TY with or without motor and V-belt drive.

CRUSHING PLANT

Portable Stone Crushing or Sand & Gravel Plant with 9 x 36 roller bearing Jaw Crusher and 20 x 26 roller bearing Roll Crusher, etc.

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200 H.P., 6 cylinder, 8 x 10½, solid injection, cylinder liners, V-belt pulley, weight about 20,000 lbs. New condition, bargain.

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4—Two stage Centrifugal, high speed, ball bearing, direct to 350 H.P., 2200 volt, 3 phase, 60 cycle, cap. 1070 GPM @ 1000 ft., with across-the-line starters.

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1—50-Ton, 0-6-0 Vulcan Locomotive
2—60-Ton, Baldwin-Westinghouse Electric Locomotive, 1500 D. C., New 1927
1—60-Ton, Westinghouse Electric Locomotive, 550 volt, D. C.
2—60-Ton, Baldwin-Westinghouse Electric Locomotives, 1500 volt, D. C.
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Half ton Cummer Asphalt plant, complete—dryer externally heated with oil burner or fuel, cold and hot material elevators, screens, bins, hopper, scales, mixer, boiler, engine, melting kettle, asphalt pump and steam circulating engine, etc. Location N. Y. State.

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All, except one, mounted on 1940 Ford Chassis. Tires newly retreads, 34x7—10 ply Dual rear, 32x6—10 ply front. Two Speed Axle. Overload springs and reinforced frame.

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2—Used 9" x 15" Champion Jaw Crushers
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1—12" x 20" Buchanan Jaw Crusher
3—12" x 26" Champion Jaw Crushers
1—4½" Traylor Gyratory Crusher
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SPECIAL,—P&H MODEL 600, ONE YARD DRAGLINE, COMPLETELY REBUILT

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60 IR drifter drills, DA-35; centralizers and automatic power feed.

13 GD paving breakers, B72-H.

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37,000 IR detachable jack-bits, Type 2, 4 point; side hole; sizes 1 11/16 to 2½". Detailed list on request.

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400 tons structural steel at Douglas dam, nearby. This includes 36" std. I beams and 14" to 21" H columns, 4x6 and 6x8" angles; all long lengths.

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23" dia. lifting magnet; 210 volts A.C.

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4 Brooks 2 yd. Loadluggers, Model CH 200, with 90 buckets; 4—1½ yd. with 160 buckets.

Clutch pulley, 6' ft. dia. x 29" face.

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No. 9 Gates Crusher—like new.
50x24 Champion Jaw Crusher.
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36x18 Farrel Jaw Crusher
12x24 Champion Jaw Crusher.
9x18 Climax Jaw Crusher.
13A Telsmith Gyratory Primary Crusher.
12" Traylor Secondary Crusher.
Barber-Greene Bucket Loader with self starter and worm feed, completely rebuilt.
1—120' center 30" belt conveyor, complete, with or without belt, 6" chanel iron frame.
1—140'—24" belt conveyor, complete, with or without belt, 6" chanel iron frame.
1—50'—24" belt conveyor, complete, with or without belt, 6" chanel iron frame.
All above mentioned conveyors have roller bearing idlers and are factory rebuilt and guaranteed.
1—60'—18" belt conveyor, complete with new belt, friction bearing idlers, 6" chanel iron frame.

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25 Ton Industrial 42' Boom Mass. Code Boiler, 160# Press., 8 Wheels, Steel Side Frames.

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1—Blake Jaw Crusher, 9"x14".

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Now only half of recent peak prices — $500 to $4250 each!
Which of these cars could YOU use?

40—Hopper, Triple, 50-Ton
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80—Refrigerator, 40-Ft., 40-Ton
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10—Dump, Magor, Automatic, 30-Yd., 50-Ton; lift doors
9—Dump, Western, Automatic 30-Yd., 50-Ton; lift doors
4—Dump, Western, 20-Yd., 40 and 50-Ton; steel floors
1—Dump, Koppel, Drop-Door, 20-Yd., 40-Ton
18—Dump, K & J, Automatic, 16-Yd., 40-Ton
20—Flat, 40-Ft., 40 and 50-Ton
70—Gondola All Steel, 40-Ft., 16 Drop doors
6—Gondola, 50-Ton., High-Side, Steel
30—Tank, 8000 Gallon, 40 and 50-Ton

Perhaps this list also has some other cars you could use to very beneficial advantage now?

All cars are priced to sell!

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40 years' experience
13490 S. Brainard Ave., Chicago 33, Illinois
"ANYTHING containing IRON or STEEL"

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1—Sauerman Slack Line Hoist Class F-2-G without power unit.
1—1 C. Y. Sauerman slackline bucket.
1—Model P. A.-100 International Power Unit.

KOEPKE CONSTRUCTION COMPANY
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1— 6 ton per hour Clyde Hydrator
1— 8 ton per hour Clyde Hydrator
1—10 ton per hour Clyde Hydrator

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½ yd. Byers Shovel—Full Revolving
5 ton 60' Span O. E. T. Crane with motors
9x16 Jaw Crusher; 16x36 Crushing Rolls
95,000 Gallon Steel Water Tank & Tower
30 KW, 125 V. Vertical Eng.—Gen. Sets
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One model 4121 4-yard Marion electric shovel with Ward-Leonard controls, used very little. Excellent condition. Immediate delivery. Located on West Coast.

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CONVEYOR BELTING

ABRASIVE RESISTANT COVERS

Width	Ply	Top-Bottom	Covers
48"	8	1/8"	1/16"
42"	5	1/8"	1/16"
36"	6	1/8"	1/16"
30"	6	1/8"	1/16"
30"	5	1/8"	1/16"
24"	5	1/8"	1/32"
24"	4	1/8"	1/32"
20"	5	1/8"	1/32"
20"	4	1/8"	1/32"
18"	4	1/8"	1/32"
16"	4	1/8"	1/32"
14"	4	1/16"	1/32"
12"	4	1/16"	1/32"

Inquire For Prices - Mention Size and Lengths

TRANSMISSION BELTING

HEAVY-DUTY FRICTION SURFACE

Width	Ply	Width	Ply	Width	Ply
18"	6	10"	6	6"	5
16"	6	10"	5	5"	5
14"	6	8"	6	4"	5
12"	6	8"	5	4"	4
12"	5	6"	6	3"	4

Inquire For Prices - Mention Size and Lengths

ENDLESS "V" BELTS

"A" WIDTH All Sizes | "D" WIDTH All Sizes
"B" WIDTH All Sizes | "E" WIDTH All Sizes
"C" WIDTH All Sizes | Sold in Matched Sets

Inquire For Prices - Mention Size and Lengths

PROTECT THAT PLANT
FIRE HOSE

APPROVED SPECIFICATION HOSE
EACH LENGTH WITH COUPLINGS ATTACHED

Size	Length	Per Length
2½"	50 feet	$28.00
	25 "	16.00
2"	50 "	23.00
	25 "	13.00
1½"	50 "	20.00
	25 "	11.00

Specify Thread On Couplings

SPECIAL OFFER . . . HEAVY DUTY
RUBBER HOSE

WATER HOSE
Each Length with Couplings Attached

I.D. Size	Length	per Length
¾"	25 feet	$4.25
1"	50 "	8.00
	25 "	6.25
1¼"	50 "	12.00
	25 "	7.50
	35 "	10.50
	40 "	12.00
	50 "	15.00
1½"	25 "	10.00
	35 "	14.00
	50 "	20.00

AIR HOSE

I.D. Size	Length	per Length	Couplings
½"	25 feet	$5.00	$1.50 Pair
	50 "	10.00	1.50 "
¾"	25 "	6.25	2.50 "
	50 "	12.50	2.50 "
1"	25 "	10.00	3.50 "
	50 "	20.00	3.50 "

LARGER SIZES ALSO AVAILABLE
All Prices—Net—F.O.B. New York

CARLYLE RUBBER CO., INC.

62-66 PARK PLACE NEW YORK, N. Y.

FOR SALE
300 DEMPSTER-DUMPSTER & BROOKS LOAD-LUGGER BUCKETS & HOISTS

IN GUARANTEED USED CONDITION AT A REAL SAVINGS

GENERAL TRADERS
2675 GRAND AVE., CHICAGO, 12, ILL.

MAXIMUM ECONOMY—TIME AND MONEY

LOCOMOTIVE TRACK CRANES
2—Std. gauge, 25 ton Browning, shop overhauled.

GYRATORY REDUCTION CRUSHERS
1—3′ Symons with coarse bowl
1—5½′ Symons with coarse bowl.
1—Traylor, bell head, 10″ feed opening.

BRIQUETTE PRESSES
2—Komarek-Greaves 32″ dia. x 24″ face, rated 25 t.p.h. with extra shafts and rolls.

ROTARY KILNS
3—5′x40′, 5′x48′, 6′x50′, all made by Vulcan Iron Works. Equipped with firing hoods, complete.
1—6′x60′
1—8′x135′ Allis-Chalmers, with 6x40′ rotary cooler.

DIRECT HEAT ROTARY DRYERS
2—5′x40′
1—5′x30′ Cummer, mounted on steel I-beam frame, with furnace, etc.
2—6′x30′ Ruggles-Coles, double shell.
1—6′x60′ Allis-Chalmers "Ebro" type, single shell.

HARDINGE CONICAL BALL AND PEBBLE MILLS
2—4′x6x16″ and 6′x22″, iron lined.
1—5′x22″ iron lined, silent chain drive.
1—6′x36″ silex lined, silent chain drive and motor.
2—8′x30″ silex lined, belt driven.

DORR CLASSIFIERS
2—Dorr Combination Bowl & Rake Classifiers, 10′ dia. with 2′3″x19′8″ rake and 12′ dia. with 2′3″x21′4″ rake.

RAYMOND MILLS
1—4 roll High Side, with air classifier, Raymond exhauster, cyclone collector and inter-connecting piping.
1—4 roll High Side, equipped with whizzer air classifier, Raymond exhauster, cyclone collector connecting piping, etc.

CRUSHING ROLLS
1—24″x40″ Pennsylvania, single roll.
2—18″x18″ Jeffrey, single roll.
2—40″x16″ double-roll, smooth shells.

BELT CONVEYORS
1—30″x24′ long, heavy steel frame, semi-portable.
1—30″x120′ c/c, Rex-Stearns anti-friction idlers; steel frame.
1—30″ approx. 500′ c/c with Jeffrey anti-friction idlers, gear reducer, motor, take-up, etc.
2—Belt Feeders, steel frames, 24″x6′.
1—Robins 24″ Reciprocating Pan Feeder.
2—Portable Belt Conveyors, 16″x25′; 16″x35′, electric motor driven.

VIBRATING SCREENS
8—Tyler Hummer, 3′x5′, 4x5′; one and two decks; also spare V-32 vibrators.
1—4′x10′ Robins, 2-deck.
1—3′x8′ Allis-Chalmers, 3-deck, UNUSED.
1—4′x8′ Huron, 1-deck.
1—4′x12′ Symons, 2-deck.

SHOVELS
1—1 yd. P. & H. Shovel, gasoline, fitted with new crawler treads.
1—Marion 37 electric, 1¾ yd., with Ward-Leonard control.

FOR 25 YEARS A SYMBOL OF CONTROLLED

CONSOLIDATED PRODUCTS COMPANY, INC.
17-19 PARK ROW NEW YORK, N. Y.
Shops and Yard at Newark, N. J., cover eight acres.

FOR SALE

Immediate shipment. Five Allis-Chalmers tube mills 5′ x 22″, chilled iron liners, steel heads, good condition.

●

KOSMOS PORTLAND CEMENT CO.
1529 Starks Bldg., Louisville 2, Ky.

FOR SALE

Two 6″ type C, Fuller-Kinyon pumps, direct connected to 25 HP, 440 Volt, 3 Phase, 60 Cycle motors, complete with starters, including 6 station control panels, with pilot lights, slate switchboard panels and metal cabinets, and 8—4″ two-way valves with pneumatic controls. Now located in Pennsylvania, and will be sold, "as is" and "where is". If interested, send best offer to

Box No. 301
c/o Pit and Quarry Publications
538 So. Clark St., Chicago 5, Illinois

BONDED SCALES, VIBRATING SCREENS, CRUSHERS

15 ton, 22′x 9′ Truck Scale....	$ 440.00
20 ton, 24′x10′ Truck Scale....	575.00
3′x6′—1-deck Vibrating Screen	495.00
3′x8′—2-deck Vibrating Screen	685.00
3′x8′—3-deck Vibrating Screen	885.00
Cinder Crusher	345.00
Portable Bag Piler.....	495.00

BONDED SCALE COMPANY
110 Bellview, Columbus 7, Ohio
Phone Garfield 1651 Eve. University 2832
Immediate Shipment—Terms.

SLIPRING MOTORS

HP	Make	Type	Volts	RPM
600	Al. Ch.	ANY	2200	1180
350	G. E.	MT	2300	300
300	G. E.	IM	2300	514
300	G. E.	IM	440	293
200	Howell	rlr. b.	440	600
100	Westg.	vert.	2200	1160
100	G. E.	IM	2200	1800
100	G. E.	IM	2300	600
100	Westg.	HF	440	230
75	Northw.	HW	220	1740
75	Lincoln	IXN	220	900
75	G. E.	MT	2200	900
50	G. E.	MT	2200	1200
50	G. E.	MT	220	900
50	Westg.	HF	440	860
50	Al. Ch.	ARY	220	690
50	G. E.	MT	2200	600
40	Wagner	TBR	440	1725
40	Al. Ch.	ARY	220	1160
35	F. Morse	vert.	220	1800
30	G. E.	MT	440	1150
30	Wagner	BR	440	850
25	G. E.	IM	440	1740
25	Century	SR	416	1170
25	G. E.	MT	2200	570
20	G. E.	MT	220	1710
15	Wesche		220	1200
5	G. E.	vert.	220	820

CHICAGO ELECTRIC COMPANY
1329 West Cermak Rd., Chicago 8, Illinois

FOR SALE

Locomotive Cranes, 10 to 40 Ton Cap'y. Steam, Gas, Diesel, Electric.
Locomotives, 6 to 120 Tons, 24″, 36″, 42″ and Standard Gauge, Steam, Gas, Diesel, Electric.
Crawler Cranes & Shovels, ⅝ to 10 yd. Steam, Gas, Diesel, Electric.
Truck Cranes, 5 to 10 Ton capacity.
Overhead Cranes, 3 to 50 Ton cap'y. various types and spans.
Tractors, crawler type, 20 to 96 HP Gas, Diesel; also attachments.
Railroad cars and tracks, narrow and standard gauge.
210 HP Diesel Motor.
Derricks, 5 to 75 Ton capacity.
40 KW Generator—Diesel Bower—AC

"Stone—the Crane Man"
502 Insurance Exchange Bldg.
Detroit 1, Michigan
PHONES: RAndolph 6156-4065

DIESELS

ALL SIZES TYPES

A. G. Schoonmaker Company
50 CHURCH ST. PHONE WORTH 2-0455
NEW YORK 7, N. Y.
BUSINESS ESTABLISHED 1898

"Northwest gas crawler 40′ boom crane, old but mechanically very good, Bought new by cement mill, closed down 10 years. Go right to work."
K30 Link Belt 45′ BM.
1¼ yd. New Hendrick Bkt.
Waukesha gas, first class.
Byers late model chain cwd ½ yd. Sh. attachment.
30′ crane boom & ⅝ Owen clam Bkt.
2—Sets Brooks CH200 Load Luggers, practically new, with bkts.

Kenney Machinery Company
2136 Jefferson St., Kansas City, Mo.

36 x 42″ Traylor Jaw Crusher, with motor.
24 x 36″ Farrel Jaw Crusher.
14 x 36″ Cedar Rapids Jaw Crusher
Allis Chalmers No. 6, 7½. 8L Gyratory Crushers.
Allis Chalmers No. 6, Superior McCully Fine Reduction Crusher.
Kennedy 38-S Gyratory Crusher.
Austin No. 107 Gyratory Crusher.
18 x 24″ McLanahan Single roll Crusher.
36 x 60″ Fairmount single roll Crusher.
4x8′ Hardinge Pebble Mill with pebbles.
2, 3 & 4′ Symons Cone Crushers.
Williams 4 roll Mill.
Barber Greene Bucket Loaders 42-62.
Belt Conveyors 14″ x 40′, 14″ x 190′.
6′x37′ Manitowoc Rotary Dryer Motor drive.
½ yard Bay City Gas Crawler Crane-Dragline.
2 yard Page Walker Dragline 60′ boom, Diesel, Diesel, Natural Gas, Steam Engines.
Locomotives, Cars, Compressors, etc.

MID-CONTINENT EQUIPMENT COMPANY
710 Eastgate Pa. 2290 St. Louis 5, Mo.

45 ft. Crane Boom. Also Pull shovel attachment for Lorain 75A or 75B.
1¼ Yd. Byers Gas Shovel.
1 Yd. B-Erie Gas-Air Shovel.
20 KW and 30 KW. Int. & Cat. diesel electric sets.
1 Yd. Link Belt K-30 gas shovel.
14 ton Whitcomb Loco-Gas—36 Ga.
20 ton Plymouth Loco-Gas—Std. Ga.
27—E. Smith Paver, Model H-31.
5—Electric Hoists, 40, 50 and 60 HP.
1 Yd. Round Shaft Buckets.
1 Yd. and ½ Yd. Dump Buckets.
2—Shovel Attach. for Byers Bearcat, Jr.
Shovel Attachment for 41B Bucyrus-Erie.

J. T. WALSH
Brisbane Building Buffalo 3, N. Y.

FOR SALE

Two yard late model Jaeger Hi dump Transit Mixer mounted on 1941 Ford Truck.

GROHNE COMPANY
2594 North Water, Decatur, Illinois

FOR SALE

2—135 K.W., AC Generators, direct connected to Fairbanks Morse Diesel engines

• • •

MERTES MACHINERY COMPANY
1622—So. 1st St., MILWAUKEE, WIS.

WANTED TO BUY

One (1) 30 H.P. Starter Switch Complete

Ohio Asphalitic Limestone Co.
New Vienna, Ohio

WANTED

A Sauerman Slackline Cableway Excavator ½ or ¾ yd. complete with gas two speed hoist.

Eggar Brothers
Livingston, Montana

WANTED

Bottom Dump Ore Cars, about 25 cubic yards capacity, with 50-ton trucks and cross hoppers, same as used on Iron Range in Minnesota.

Malvern Gravel Company
Malvern, Arkansas

WANTED

Gyratory Crusher, 24" to 26" opening or Jaw Crusher, about 30" x 50" opening.
Elevators, conveyors, etc., for above 500 ft. Air Compressor with or without Motor.
20 to 30 ton Steel Guy Derrick.
Will consider anything needed in the erection of a new crushing plant,—including secondary crushers, vibrating screens, etc.

BOX 311, c/o PIT AND QUARRY
538 S. Clark Street Chicago 5, Illinois

WANTED

Shovels (2), elec., 1½-yd.; Diesel—gas, 1¾—2 yd. Locomotives, 25 & 40 ton, std. ga., steam, gas. Crushers, Superior-McCully 20"; 36"x48" jaw. Dragline, Walker or crawler, Diesel or elec., 2½ to 3-yd., 75' to 100' boom.
Portable crushing & screening plant, duplex, on rubber, with power.

H. Y. SMITH COMPANY
828 N. B'WAY, MILWAUKEE 2, WISCONSIN

WANTED TO BUY

8" Hydraulic Dredging Outfit with Agitator, Diesel Power.
Write — Wire — Phone

EAST LANSING GRAVEL COMPANY
East Lansing, Michigan
Phone 83811 J. N. Angell

WE WANT TO CORRESPOND WITH A PARTY INTERESTED IN RENTING OUR LIMESTONE QUARRY IN WESTERN ILLINOIS, LOCATED ON GOOD GRAVEL ROAD, NEAR TO CEMENT ROAD AND RAILROAD. WE HAVE TWO JAW CRUSHERS AND TWO HAMMERMILLS, BUT NO POWER EQUIPMENT.
WENZLEMANN MFG. CO. GALESBURG, ILL.

WANTED TO BUY
Modern Block Plant
3 to 6 thousand daily capacity.
Reply P. O. Box 1205
Charlotte, North Carolina

ELECTRICAL MACHINERY

Motors and Generators, A.C. and D.C. for sale at attractive prices. New and Rebuilt. All fully Guaranteed. Send us your inquiries.

V. M. NUSSBAUM & CO., Fort Wayne, Ind.

WANTED

A La Plante Choate Bulldozer blade for a wide gauge RD-6 Caterpillar. All parts needed except pump.

•

Advise BOX 309, c/o PIT & QUARRY
538 So. Clark St. Chicago 5, Ill.

WANTED

2—two compartment tube mill approximately 7' x 26'.
1—Rotary kiln approximately 8' x 300' or 2 kilns 8' x 150' for delivery to West Coast.

Box 305, Pit and Quarry Publications
538 So. Clark Street Chicago 5, Illinois

WANTED

One 36"x48" or larger Jaw Crusher

•

The Central Silica Company
Masonic Temple, Zanesville, Ohio

WANTED TO BUY

One Jaw Crusher, size 42x48. Write

WALKER BROTHERS
Thorold, Ontario, Can.

WANTED

1 ¾ yard to 2¼ yard, 3 Motor or a 1 motor drive electric shovel, Marion or a Bucyrus. In A1 condition. Up to 4 months delivery.

Address replies to Box 307

PIT AND QUARRY PUBLICATIONS
538 So. Clark Street Chicago 5, Illinois

WANTED
An Assistant Chemist

in midwest cement plant. State training, experience, if any, draft status. Give references. Write Box No. **201**, Pit and Quarry, 538 South Clark St., Chicago 5, Ill.

EXPERIENCED SUPERINTENDENT WANTED

Midwest quarry. Permanent job. Good advancement possibilities. Give experience, education, positions held, birth date, marital status, salary expected.

Box 207 c/o Pit & Quarry
538 So. Clark St., Chicago 5, Ill.

LIME HYDRATOR FOR SALE

One continuous type Clyde Hydrator, 10 ft., complete with stacks, capacity 5-7 tons per hour, including Kuntz wash stack with motor pump, and 3 HP feeder motor. Purchased by us 1943, in fine condition.

Kimbalton Lime Company, Inc.
Shawsville, Va.

Royal E. Burnham

Attorney at Law

Patent and Trade-Mark Causes

511 Eleventh Street, N. W.
WASHINGTON, D. C.

JUDD & SON

DRILLING CONTRACTORS
PROSPECTING, SAMPLING
BLAST HOLES & CLAY PITS

Martin City, (K. C.), Mo.

CORE DRILLING
TEST BORING

Dundee Engineering Company
Dundee, Illinois

CORE DRILLING
ANYWHERE
We look into the earth
PENNSYLVANIA
DRILLING COMPANY
PITTSBURGH, PA.

Quarries
Crushing Plants
Cement Plants
Storage Methods
Operating Costs

E. Lee Heidenreich, Jr.

Consulting Engineer

Route No. 1, Newburgh, N. Y.
Phone 3677-M

Operation
Plant Layout
Design
Construction
Appraisals

Wanted Plant Superintendent

Familiar with pipe, block or any special concrete product. Must have at least high school education, be mechanically inclined and have pleasing personality. Age limit 48. Postwar opportunity with large concern branching out into full line of products in various sections of the United States and operating on an incentive profit sharing plan. Past record must stand rigid inspection. Include photograph in reply.

Box 101, c/o Pit and Quarry
538 S. Clark Street, Chicago 5, Ill.

Cement Company with plant in Spanish speaking country, with a capacity of 3,000 barrels daily, desires to contact men of long experience who have served as **Plant Managers—Plant Superintendents, Master Mechanics.** In reply state past duties in detail, and give salary requirements. Knowledge of Spanish not essential.

Box 303, c/o Pit and Quarry Publications
538 So. Clark St. Chicago 5, Illinois

FOR SALE

1—Gas Buda Motor with clutch. 125 H.P. at 1000 R.P.M. In good condition. Price $1100.00 f.o.b. loading point.

• • •

DECKERS CREEK SAND COMPANY
Monongahela Building, Morgantown, W. Va.

FOR SALE

1—7½ McCulley Crusher	$1,000.00
1—Gardner-Denver Wagon Drill	670.00
1—Chicago Pneumatic Portable Air Compressor	825.00
1—36" Conveyor Assembly	175.00
1—Gardner-Denver Vertical XH Compressor	125.00
1—½ Yard Shovel Bucket	200.00
2—1 Yard Shovel Buckets, each	75.00

SCIOTO LIME & STONE COMPANY, INC.
Post Office Box 338, Delaware, Ohio

FOR SALE

Number Twenty Williams Slugger Hammermill, extra sets Hammers, Grates, etc. Suitable for Aglime production or hard aggregates. Also 36 foot Columbus Bucket Conveyor 14 inch buckets. Both in steady operation now but to be replaced shortly by larger units. Located south Florida.

•

E. A. Pynchon, Box 1921, North Miami, Fla.

Two (2) Besser Super K Tampers
One (1) Besser 40 cu. Ft. Mixer
5000 Plain Steel Pallets 12"x18½"
One (1) Diester (Leahy) Vibrator & Screens
One (1) Blystone 14 Cu. Ft. Mixer
Two (2) Anchor Tampers
3000 12"—3 Core Steel Pallets

MULTIPLEX CONCRETE CO., INC.
East Orange, New Jersey

FOR SALE

Crawler type—Steam shovel and crane boom
¾ yd.—Bucyrus Erie—Type B
Serial No. 984

EXCELLENT CONDITION

MANLEY SAND COMPANY
Rockton, Illinois

RAILS NEW AND RELAYING

MOST ALL SECTIONS IN STOCK also spikes, bolts, frogs, and switches available.
Always in the Market to buy surplus material. Send us your inventories.

M. K. FRANK
480 Lexington Ave. Park Building
New York City Pittsburgh, Penna.
Blitz Bldg., Reno, Nevada Havana, Cuba

MORTAR OR BATCH MIXING PLANT FOR SALE

Complete mortar or batch mixing plant with 55 ft. screw conveyor 9" with 5 HP Gear motor. Elevators 31 ft. centers complete with gear motor drive, two compartment heavy steel storage bin for 80 tons bulk cement and 20 tons Hydrated Lime. Sprout Waldron two ton batch mixer with 20 HP Gear Motor drive, all mounted on Howe, 15 ton suspension scales, plant good as new. Bargain.

Kimballton Lime Company, Inc., Shawsville, Va.

1—Dixie Hammermill 50" wide. Serial No. 1832, shipped from St. Louis plant new in May, 1944, in operation 90 days.
1—V-belt drive 720 to 1200 R.P.M. and spare sheave to drive mills, 1490 R.P.M.
1—Set spare belts.
1—Complete set new hammers.

ADDRESS BOX 313, c/o PIT & QUARRY
538 So. Clark Street Chicago 5, Illinois

DRAG SCRAPER

Sauerman Bros. drag scraper equipment with traveling head tower, including motors and controls for storing and reclaiming 200 tons of material per hour.

BREW, WOLTMAN & COMPANY, INC.
50 Church St., New York 7, N. Y.

4—60 H.P. Fairbanks-Morse, 6 cyl. Stationary Diesel Engines, also reduction gears ot 308 R.P.M., or can supply Electric Generators.

A. G. SCHOONMAKER COMPANY

50 Church St., N. Y. **WO 2-0455**

GENERAL COMPRESSOR & TOOL CO.

186 Grand Street
NEW YORK, N. Y.

★

Large stock of new and used Ingersoll-Rand air compressor equipment.

MISCELLANEOUS

Chicago NSB air compressor, 14"x12", 529 CFM
National Double drum 25 hp electric hoist
Sauerman double drum 50 hp electric dragline
N. Y. Air Brake 6B Duplex steam air compressor
Worm drive speed reducers, 50—1, 70—1
Electric motors, 1 to 100 hp
Morris 6" manganese lined sand pump
Ellicott 4" belt drive sand pump
Two 6" centr. water pumps, 15 hp motors
4 and 8 ton gasoline locomotives
24" flat and V shaped cars
400 hp V belt double pulley unit with belt
Waukesha 4 cyl. engine with speed reducer
3 steel pontoons, 4'x4'x14', ¼" plate

CONVEYOR AND PARTS

1900' 48" x 8 ply conveyor belt, prewar
Belt conveyor pulleys, idlers and belt
Sandvik 24"x96' steel belt conveyor
Jeffery Foundry mold type conveyor, 42"x150"
Steel plate conveyor, 47"x26'
Link-Belt single flight conveyor, 15"x56'
Haiss portable belt conveyor, 14"x24 feet
Belt trippers for 14", 16" and 18" belt
Weller 36" Automatic horizontal belt take up
Screw take ups for belt conveyor, 12" to 12'
Screw and gravity conveyors
New and used conveyor belt

VIBRATING AND REVOLVING SCREENS

GYREX double deck 4'x10' vibrating screen
Simplicity three deck 3'x6' vibrating screen
Leahy single deck 4'x9' double vibrators
Leahy single deck 4'x9' double vibrating screen
Plat-O single deck 3'x8' vibrating screen
Jigger three deck 2'x5' vibrating screen
Hummer single deck 3'x5' vibrating screen
Hummer single deck 4'x5' vibrating screen
15 cycle generators for Hummer screens
Revolving Screens: 4'x16', 4'x22', 5'x18'

CRUSHERS — ROLLS — MILLS

Buchanan 14"x30" C double roll crusher
Allis-Chalmers 16"x42" double roll crusher
Sturtevant double Laboratory Rolls, 8"x5"
Acme 6"x21" reduction crusher, roller bearings
Buchanan 10"x16" Blake type jaw crusher
New Eng. 11"x21" jaw crusher, cast steel
Traylor "BULLDOG" 11" gyratory crusher
Sturtevant No. 0 Rotary Fine Crusher
Williams No. 2 hammermill
Midwest No. 2 hammermill
Robins double roll coal crusher, 24"x30"
Single roll coal crusher, 24"x24"
Simplex coal pulverizer, roller bearings
8 tons steel crushing balls, 1" to 2"
American Standard 24" disintegrator

BUCKET, ELEVATORS, CHAINS, PARTS

Bucket elevators, 16", 18", 20" on chain and belt
50' elevator, 8" malleable buckets on belt
Continuous 14"x50' bucket elevator on chain
Continuous 14"x35' bucket elevator on belt
Continuous 30"x40' bucket elevator, double chain
Grain elevators, 5" to 18" buckets on belt
500' No. 730 Pindle chain, 6" pitch
300' Jeffrey No. 1123 roller chain with attach.
200' No. 847 with K2, 400' No. 825 with A-42 attach.
600' Evarts No. 124, 300' xxs40 roller chain
Selected chain sprockets, new and used
New malleable elevator buckets, 20"x8"—AA

G. A. UNVERZAGT & SONS
136 Coit Street Irvington, New Jersey

GOOD VALUES — ALWAYS

4¼' Symons Coarse bowl Cone Crusher
24x18 and 36x18" American Pulverizers
2 Yd. Williams Clamshell digging bucket
1¼ Yd. P&H Gas Crane and Dragline
300 Ft. also 3000 ft. Air Compressors
100 to 1200 HP Diesel Power Plants

MISSISSIPPI VALLEY EQUIPMENT COMPANY
513 Locust Street St. Louis 1, Missouri

SHOVELS—CRANES

Bucyrus-Erie 75B elec. shovel and dragline 2½ yd.
Bucyrus-Erie 50B dragline, Diesel
Bucyrus-Erie 37B shovel, Gas.
Marion 371, 1¾ yd. Shovel, Crane, Dragline
Marion elec. shovel, 1¼ yds.
Lorain 75B shovel and crane, 1½ yds.
Bucyrus-Erie 42B Steam shovel-crane
P & H 650 shovel-crane
Browning 10 ton Truck Crane
P & H 208A, 8 ton Truck Crane
Byers Bearcat ½ revolving Crane, 5 tons cap.

SPECIALS!!

Ingersoll-Rand Model 50 Drill Sharpener
Allis-Chalmers cent. pump, electric, 3500 GPM, 50'
Worthington 8" cent. bronze impeller, elec. Pump
Rotary Screen 4'x18' with Bucket Elevator 40'

BUCKETS—STONE SKIPS

⅞ yd. Blaw-Knox Clamshell, digging
⅞ yd. Hayward Clamshell, digging
Hayward ¾ yd. Standard Orange Peel
¾ yd. Williams Clamshell, digging
⅞ yd. Haiss Clamshell, digging
½ yard Haiss Clamshell, rehandling
¾ yard Haiss Clamshell, rehandling
Erie ¾ yd. Clamshell, rehandling
20—2½ to 3 yd. Battleship type Steel Stone Skips

TRACTORS—BULLDOZERS

Int. TD18 tractor with bulldozer, rebuilt
Int. TD40 tractor with bulldozer, rebuilt
Allis-Chalmers Model WS tractor with 8 yd. hydraulic scraper
Allis-Chalmers Model L with bulldozer

CRUSHERS—CRUSHER PLANTS

Gyratory Crushers: K.V.S. 30, 49; Traylor 8", 10", 12", 14", McCully 13", 8", 6".
Jaw: 10x22, 10x24, 10x30, 11x18, 11x21, 12x22, 12x24, 14x24, 14x25, 15x32, 16x32, 16x38

LOCOMOTIVES—CARS

American 60 ton, steam, std. ga.
American 45 ton, Saddle Tank
Whitcomb 20 ton Gas Loco. Std. gauge
Vulcan 25 ton side saddle tank, steam, std. gauge
Plymouth 30 ton standard gauge Saddle Tank
Vulcan 30 ton Steam, Saddle Tank
Whitcomb 14 ton, Diesel, 36" gauge
Porter 13 ton, Steam Saddle Tank, 36" gauge
Baldwin Westinghouse 8 ton, 36" ga. Battery
Vulcan 6 ton, 36" gauge, gas
3—Western Steel 20 yard Air Dump Cars
3—30 ton Standard Gauge Flat Cars, rebuilt

CONCRETE PLANT & EQUIPMENT

2—Ransome 28S Mixers on skids, left and right hand
Koehring 34E Dual Drum Power
Fuller Kinyon Bulk cement unloader
Pauers—27E—2 Koehring, 1 Multi-Foote 1 Rex
Rex Pumpcrete Models 160, 180, 190 and 200
Finishing machines from 10' up to 32 ft.

RICHARD P. WALSH COMPANY
30 Church St. New York, N. Y.

1—Bucket Elevator complete. 35' center, 20" bucket—150 ton capacity with belt.

1—Haiss Bucket Loader. Model B—Serial B-4963—Waukesha Motor.

1—Portable Flight Conveyor. 24' x 18" with spiral feeder and buckets. Mounted on 2 pneumatic tires.

1—20 KW DC Generator Set (less engine).

3—25 KW DC 115 v. 560 R.P.M.—217 ampere. Gasoline Driven Electric Generators.

1—Ingersoll-Rand Air Compressor. Single Stage—110 Ft. on 4 steel wheels.

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